

BOSTON PUBLIC LIBRARY
NOT TO BE TAKEN AWAY
Science Reference

Form No. 122

★
No. 4031.23



1916
a

GIVEN BY

New England Power Service Co.

THE INDUSTRIAL ARTS INDEX

FOURTH ANNUAL CUMULATION

SUBJECT INDEX TO A SELECTED LIST OF ENGINEERING
AND TRADE PERIODICALS FOR 1916

EDITED BY

MARION E. POTTER, LOUISE D. TEICH
AND HELEN M. CRAIG

[illegible]

THE H. W. WILSON COMPANY
WHITE PLAINS, N. Y. and NEW YORK CITY
1916

* 4031. 23 A
1916

New England Paper Service Company
June 16, 1937 Sci. Rf.

Industrial Arts Index

Vol. IV

December, 1916

No. 5

Published February, April, June, October, December by
THE H. W. WILSON COMPANY

White Plains, N. Y.....39 Mamaroneck Ave.
New York City.....10 E. Forty-third St.

Full information in regard to subscription
price will be supplied on request.

The subscription price of the Scientific American has been advanced to \$4.00 a year, and that of Factory to \$3.00 a year.

Good Roads also announces an advance in price to \$3.00, and hereafter the weekly issues will be uniform in size, carrying technical matter, as well as contract and general news.

Gas Age has been added to the list of periodicals indexed, the numbers from July 1, 1916, beginning volume 38, having been indexed for this volume. We regret to say, however, that volume 10 of the Proceedings of the American Gas Institute was received too late to be included. It will be indexed in an early number of 1917.

The Building Age, founded under the name of Carpentry and Building, by David Williams, in January, 1879, has passed to the control of the American Architect, 50 Union Square, New York. It will continue as a separate publication, devoted to the same field as heretofore, and there will be no material change in the editorial policy.

Industrial Management is the new and more descriptive name which has been chosen as the main title of the Engineering Magazine. A pioneer in the science of industrial management, it has for more than twenty-five years published authoritative literature on the subject. As the science itself was largely developed by members of the engineering profession, the publication was addressed specifically to that profession, but changing conditions have opened up a broader field. Industrial managers in all lines of work are becoming interested in the various phases of the science of management, and a more comprehensive title was needed to indicate the scope of the Engineering Magazine.

Is Indexing Worth a Free Copy?

It is with regret that we announce that the publishers of the Engineering and Mining Journal are no longer willing to send us copies of their Journal for indexing. The Mining World, which received a large number of votes from librarians when our original referendum was taken, will be added to the list of magazines indexed, and possibly the Mining Press also will be included later. There is no doubt that the mining field will be well represented.

It seems to us eminently fair that the publishers of periodicals should share with libraries the expense of indexing; an index adds much to the value of periodicals and it is their publishers who reap the pecuniary benefit in increased subscriptions. Some publishers have recognized this fact and have offered to pay for having their magazines included in our indexes. We could not, of course, accept this offer, as it would be unfair to accept payment from some publishers, without requiring it of others. We have, however, required that free copies should be furnished us for indexing, a trifling return, it seems to us, for the great service that is rendered the publishers. This policy was adopted in the interests of and with the approval of our subscribers. To forsake this policy and to pay subscriptions to all the magazines indexed would necessitate an increase in the price of the Index to libraries. We trust that this will not be necessary. It may be added that publishers have, for the most part, supplied copies of their magazines very willingly. Perhaps subscribers who wish very much to have the Engineering and Mining Journal retained on the Industrial Arts list may be able to influence its publishers to reconsider their decision.

New Technical and Industrial Books

It has been suggested that The H. W. Wilson Company undertake the publication of a periodical list of new technical and industrial books. This would be in the form of a four-page leaflet, to be issued quarterly. Mr. Ed-

NOTES AND ANNOUNCEMENTS

ward S. Stevens, Director and Librarian of the Pratt Institute Free Library, who suggested the publication of such a list, has generously proposed that the editorial work be done by the Applied Science Reference Department of Pratt Library and at no charge but merely for the good of the cause. He discusses the plans for the list as follows:

"It is a very simple proposition. To recommend current technical books for the smaller libraries to purchase and to provide leaflets for distribution at those libraries so that the books may be brought to the notice of the public. By brief annotations the character and scope of each book listed would be evident to the library buying and the reader borrowing. The selection of these books would be guided by the requirements of the average town library not specializing in technology. The books recommended would be such that every library ordering the leaflet should buy all the books named. Here and there a book might be omitted if not appealing to the public of that locality, but that need not affect the usefulness of the list in that place as the inappropriate book would not be asked for. In any event,

such a special book would be available by borrowing from another library to meet an unusual need. The direct and non-mathematical manual for the worker would be favored in the selection over the advanced treatise for the engineer. Highly technical books would not be included."

The H. W. Wilson Company will be willing to undertake the printing and distribution of these four-page leaflets if a subscription of 10,000 copies can be secured. This would be equivalent to 100 subscribers for 100 copies each or 50 subscribers averaging 200 copies each. If this number of subscribers can be secured an annual subscription rate can be made of \$2 a year for 100 copies each quarter. The minimum subscriptions taken will be for 50 copies for one year at \$1; a library ordering 500 copies at \$10 may have its own imprint without additional charge.

In case the publishing of this list is undertaken it would be desirable to issue the first number early in the new year. If libraries interested in this plan will notify us promptly of about how much support we may expect from them, it will enable us to formulate our plans.

List of Periodicals Indexed

- Am Chem Soc J**—Journal of the American Chemical Society. \$6. Charles L. Parsons, sec., Box 505, Washington, D. C.
- Am For**—American Forestry. \$3; single numbers 25c. American Forestry Assn., 1410 H St, N. W., Washington, D. C.
- Am Gas Inst Pro**—Proceedings of the American Gas Institute, tenth annual meeting, 1915. \$7.50 to libraries. American Gas Institute, 29 W 39th St, New York.
Not received in time for indexing in this number.
- Am Gas Light J**—American Gas Light Journal. \$3; single numbers 10c. American Gas Light Journal, 42 Pine St, New York.
- Am Ind**—American Industries. \$1; single numbers 10c. National Manufacturers Co., 30 Church St, New York.
- Am Inst Arch J**—Journal of the American Institute of Architects. \$3.50; single numbers 35c. American Institute of Architects, The Octagon, Washington, D. C.
- Am Inst E E Pro**—American Institute of Electrical Engineers. Proceedings. \$10; single numbers \$1. F. L. Hutchinson, sec., 33 W 39th St, New York.
- Am Inst Min E Bul**—Bulletin of the American Institute of Mining Engineers. subs. \$10; single numbers \$1; to members, public libraries, and educational institutions, \$5; single numbers 50c. B. Stoughton, sec., 29 W 39th St, New York.
- Am Soc Heat & V E**—Transactions of the American Society of Heating and Ventilating Engineers. American Society of Heating and Ventilating Engineers, 29 W 39th St, New York.
- Am Soc M E J**—Journal of the American Society of Mechanical Engineers. \$3; single numbers 35c. American Society of Mechanical Engineers, 29 W 39th St, New York.
- Am Water Works Assn J**—Journal of the American Water Works Association. American Water Works Assn., 2419 Greenmount Av, Baltimore, Md.
- Arch & Bldg**—Architecture and Building. \$2.50; single numbers 25c. William T. Comstock Co., 23 Warren St, New York.
- Arch Rec**—Architectural Record. \$3; single numbers 35c. Architectural Record Co., 115 W 40th St, New York.
- Automobile**—Automobile. \$3; single numbers 10c. Class Journal Co., 231 W 39th St, New York.
- Bldg Age**—Building Age. \$2; single numbers 20c. Am. Architect, Inc., 50 Union Square, New York.
- Boston Soc C E J**—Journal of the Boston Society of Civil Engineers. \$4 (ten numbers); single numbers 50c. Boston Society of Civil Engineers, 715 Tremont Temple, Boston.
- Brickb**—Brickbuilder. \$5; single numbers 50c. Rogers & Manson Co., 85 Water St, Boston.
- Coal Age**—Coal Age. \$3; single numbers 10c. Hill Pub. Co., 10th Av at 36th St, New York.
- Colliery**—Colliery Engineer. \$2; single numbers 25c. Hill Pub Co., 10th Av at 36th St, New York.
Consolidated with Coal Age on Nov. 6.
- Concrete**—Concrete. \$2; single numbers 20c. Concrete-Cement Age Pub. Co., Telegraph Bldg., Detroit, Mich.
Formerly published as Concrete-Cement Age.
- Concrete Cem**—See Concrete.
- Dom Eng**—Domestic Engineering. \$2; single numbers 10c. Domestic Engineering Co., 407 S Dearborn St, Chicago.
- Econ Geol**—Economic Geology. \$3; single numbers 50c. Economic Geology Pub. Co., 41 North Queen St, Lancaster, Pa.
- Elec Ry J**—Electric Railway Journal. \$3; single numbers 10c. McGraw Pub. Co., 239 W 39th St, New York.
- Elec R & W Elec'n**—Electrical Review and Western Electrician. \$3; single numbers 10c. Electrical Review Pub. Co., 608 S Dearborn St, Chicago.
- Elec W**—Electrical World. \$3 single numbers 10c. McGraw Pub Co., 239 W 39th St, New York.
- Engineer**—Engineer. Thick paper ed £2 6d; Canadian subs £1 16s; thin paper ed £1 16s; Canadian subs £1 11s 6d. Engineer, 33 Norfolk St, Strand, London, W. C.
- Eng & Contr**—Engineering and Contracting. \$3. Myron C. Clark Pub. Co., 608 S Dearborn St, Chicago.
- Eng & Min J**—Engineering and Mining Journal. \$5; single numbers 15c. Hill Pub. Co., 10th Av at 36th St, New York.
- Eng M**—Engineering Magazine. \$3; single numbers 25c. Engineering Magazine Co., 140 Nassau St, New York.
Continued as Industrial Management.
- Eng N**—Engineering News. \$5; single numbers 15c. Hill Pub. Co., 10th Av at 36th St, New York.
- Eng Rec**—Engineering Record. \$5; single numbers 15c. McGraw Pub. Co., 239 W 39th St, New York.
- Eng Soc W Pa**—Proceedings of the Engineers' Society of Western Pennsylvania. \$5; single numbers 50c. Engineers' Society of Western Pennsylvania, 2511 Oliver Bldg, Pittsburgh, Pa.
- Factory**—Factory. \$3. A. W. Shaw Co., Wabash Av & Madison St, Chicago.
- Foundry**—Foundry. \$1; single numbers 15c. Penton Pub. Co., Penton Bldg, Cleveland, O.
- Gas Age**—Gas Age. \$3. Progressive Age Pub. Co., 52 Vanderbilt Av, New York.
Indexed from July 1, 1916.
Formerly Progressive Age.
- Gen Elec R**—General Electric Review. \$2; single numbers 20c. General Electric Co., Schenectady, N. Y.
- Good Roads n s**—Good Roads new series. \$2; single numbers 5c except first numbers of each month 10c. E. L. Powers Co., 150 Nassau St, New York.
To be advanced to \$3; with uniform weekly numbers.
- Heat & Ven**—Heating and Ventilating Magazine. \$1; single numbers 10c. Heating & Ventilating Magazine Co., 1123 Broadway, New York.
- Horseless Age**—Horseless Age. \$2; single numbers 10c. Horseless Age Co., 95 Madison Av, New York.
- Ill U Eng Exp Sta Bul**—Illinois University Engineering Experiment Station. Bulletin. Univ. of Ill., Urbana.
- Illum Engr**—Illuminating Engineer. 10s 6d; single numbers 1s. Illuminating Engineering Pub. Co., 32 Victoria St, London, S. W.
- Illum Eng Soc**—Transactions of the Illuminating Engineering Society. \$5; single numbers 75c. Illuminating Engineering Soc., 29 W 39th St, New York.
- Ind Management**—Industrial Management. \$3; single numbers 25c. Industrial Management, 140 Nassau St, New York.
Formerly Engineering Magazine.

LIST OF PERIODICALS INDEXED

- Inland Ptr**—Inland Printer. \$3; single numbers 30c. Inland Printer Co., 632 Sherman St, Chicago.
- Inst E E J**—Journal of the Institution of Electrical Engineers. single numbers 7s. E. & F. N. Spon, Ltd., 57 Haymarket, London, S. W.; Spon & Chamberlain, 123 Liberty St, New York.
Published monthly since March 1. The last fortnightly part (no. 257) was dated 1 March, 1916, price 3s 6d.
- Int Marine Eng**—International Marine Engineering. \$2. Aldrich Pub. Co., Printing Crafts Bldg., 461 8th Av, New York.
- Iron Age**—Iron Age. \$5; single numbers 20c. David Williams Co., 239 W 39th St, New York.
- Iron Tr R**—Iron Trade Review. \$4; single numbers 15c. Penton Pub. Co., Penton Bldg., Cleveland, O.
- J Account**—Journal of Accountancy. \$3; single numbers 30c. Ronald Press Co., 20 Vesey St, New York.
- J Fr Inst**—Journal of the Franklin Institute. \$5; single numbers 50c. Franklin Institute, Philadelphia.
- J Ind & Eng Chem**—Journal of Industrial and Engineering Chemistry. \$6. American Chemical Society, Easton, Pa.
- Locomotive**—Locomotive. 50c; single numbers gratis; recent bound volumes \$1. Hartford Steam Boiler Inspection & Insurance Co., Hartford, Conn.
- Mach**—Machinery. Engineering edition \$2; coated pa. \$2.50; single numbers 20c. Industrial Press, 140 Lafayette St, New York.
- Met & Chem Eng**—Metallurgical and Chemical Engineering. \$3; single numbers 25c. McGraw Pub. Co., 239 W 39th St, New York.
- Metal Ind n s**—Metal Industry new series. \$1; single numbers 10c. Metal Industry, 99 John St, New York.
- Metal Work**—Metal Worker, Plumber & Steam Fitter. \$2; single numbers 10c. Am. Architect, Inc., 50 Union Square, New York.
- Minn U Bul**—University of Minnesota. Studies in engineering. Univ. of Minn., Minneapolis.
No numbers published in 1916.
- Munic Eng**—Municipal Engineering. \$2; single numbers 25c. Engineering Pub. Co., 702 Wulsin Bldg, Indianapolis, Ind.
- Munic J**—Municipal Journal. \$3; single numbers 10c; special numbers 25c. Municipal Journal and Engineer, Inc., 50 Union Square, New York.
- Power**—Power. \$2; single numbers 5c. Hill Pub. Co., 10th Av at 36th St, New York.
- Ry Age**—Railway Age Gazette. \$5; single numbers 15c. Simmons-Boardman Pub. Co., Woolworth Bldg, New York.
- Ry Age (Mech ed)**—Railway Age Gazette, mechanical edition including the American Engineer. \$2; single numbers 20c. Simmons-Boardman Pub. Co., Woolworth Bldg, New York.
Now published as Railway Mechanical Engineer.
- Ry Mech Eng**—Railway Mechanical Engineer including the American Engineer. \$2; single numbers 20c. Simmons-Boardman Pub. Co., Woolworth Bldg., New York.
Formerly Railway Age Gazette, Mechanical edition.
- Ry R**—Railway Review. \$4; single numbers 15c. Railway Review, 537 S Dearborn St, Chicago; 30 Church St, New York.
Formerly Railway and Engineering Review.
- Sci Am**—Scientific American. \$4; single numbers 10c. Munn & Co., 233 Broadway, New York.
- Sci Am S**—Scientific American Supplement. \$5; single numbers 10c. Munn & Co., 233 Broadway, New York.
- Sibley J**—Sibley Journal of Engineering. \$2; single numbers 20c. Sibley College, Cornell Univ., Ithaca, N. Y.
- Stevens Ind**—Stevens Indicator. \$1.50; single numbers 50c. Stevens Institute of Technology, Hoboken, N. J.
- Textile World**—Textile World Journal. \$3 Braddon, Lord & Nagle Co., 461 8th Av at 34th St, New York.
Formerly published as Textile World Record, monthly at \$2
- U S Agric Bul**—United States. Dept. of Agriculture. Bulletin. Distributed free of charge. U. S. Dept. of Agriculture, Division of Publications, Washington, D. C.
Contributions from the Bureau of Chemistry, Forest Service and Office of Public Roads are indexed.
- U S Bur For & Dom Com**—United States. Bureau of Foreign and Domestic Commerce. Special agents series. U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C.
- U S Bur Mines Bul**—United States. Bureau of Mines. Bulletin. Distributed free of charge. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Mines Circ**—United States. Bureau of Mines. Miners' circular. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Mines Tech Pa**—United States. Bureau of Mines. Technical paper. U. S. Bureau of Mines, Washington, D. C.
- U S Bur Stand Bul**—United States. Bureau of Standards. Bulletin. Gratis to educational and scientific institutions and to government depositories. U. S. Bureau of Standards, Washington, D. C.
Sold to individuals by the Superintendent of Documents. \$1; single numbers 25c.
- U S Bur Stand Circ**—United States. Bureau of Standards. Circular. U. S. Bureau of Standards, Washington, D. C.
- U S Bur Stand Tech Pa**—United States. Bureau of Standards. Technologic papers. U. S. Bureau of Standards, Washington, D. C.
- U S Sp Cons Rep**—United States. Special consular reports. U. S. Bureau of Foreign and Domestic Commerce, Washington, D. C.
- W Soc E J**—Journal of the Western Society of Engineers. \$3; single numbers 50c. Western Society of Engineers, 1735 Monadnock Blk, Chicago.
- Wis U Bul Eng S**—Bulletin of the University of Wisconsin, Engineering Series. Univ. of Wis., Madison.

Explanations

Book reviews in the Electrical World, Engineering News, and Engineering Record are indexed in the Book Review Digest.

The abbreviations used are bibliog bibliography; cond condensed; cont continued; diag diagram; il illustrated; por portrait; tr translated or translation or translator. A colon after an initial designates the most usual given name, as A: Augustus; B: Benjamin; C: Charles; D: David; E: Edward; F: Frederick; G: George; H: Henry; I: Isaac; J: John; L: Louis; N: Nicholas; P: Peter; R: Richard; S: Samuel; T: Thomas; V: Victor; W: William.

Industrial Arts Index

A Cumulative Index to Engineering and Trade Periodicals

January-December, 1916

- Abattoirs.** See Slaughtering and slaughter-houses
- Abbe, Cleveland, 1838-1916**
Sketch. Sci Am 115:437 N 11 '16
- Abbreviations**
Conference on abbreviations and terminology. Am Soc M E J 38:319-20 Ap '16
Standards for abbreviations. Am Soc M E J 38:560-1 Jl '16
See also Ciphers
- Abderhalden, Emil, 1877-**
Abderhalden's new studies of the ductless glands. Sci Am 115:123 Ag 5 '16
- Aberdeen, Scotland**
 Water supply
 Water supply of Aberdeen. il diag plan maps Engineer 121:515-17, 524 Je 23 '16
- Aberdeen, Washington**
 Water supply
 New gravity water-supply for Aberdeen. il Eng N 75:603 Mr 30 '16
- Ability**
See also Efficiency, Industrial; Leadership
- Ability tests**
Selecting men for jobs. H. Schneider. Eng M 51:420-31 Je '16
Standardizing the characteristics of men. W: F. Kemble. il Ind Management 52:308-23 D '16
Testing the fitness of your employees. W: F. Kemble. il Ind Management 52:149-64 N '16
- Ablain St. Nazaire, France**
Ruins of Ablain St. Nazaire. J. P. Alaux. il Am Inst Arch J 3:516-17 D '15
- Abrasives**
Aluminous abrasives from waste garnet: patented by J. Davenport. diag Met & Chem Eng 15:359-60 S 15 '16
Grading industries; abrasive grains and products. E: S. Wiard. Met & Chem Eng 14:575-8 My 15 '16
See also Grinding and polishing; Pebbles
- Absorbent cotton.** See Cotton, Absorbent
- Abutments.** See Bridges—Abutments
- Academic degrees.** See Degrees, Academic
- Académie française**
French academy prizes. Sci Am S 82:323 N 18 '16
- Acceptances**
Trade acceptances. S. Walton. J Account 22: 58-62 Jl '16
Trade acceptances from a mercantile viewpoint. K. R. Hooker. Textile World 51:3892+ S 9 '16
Trade acceptances growing in favor. G. F. Creveling. Iron Tr R 59:215-19 Ag 3 '16
- Accident law**
See also Workmen's compensation
- Accident prevention.** See Safety devices and measures
- Accidents**
See also Aeronautics—Accidents; Automobile accidents; Building failures; Explosions; Guns; Lightning; Mine accidents; Occupations, Dangerous; Railroads—Accidents; Safety devices and measures; Street railroads—Accidents
- Accidents, Industrial**
Accidents at metallurgical works in the United States during the calendar years 1913 and 1914. A. H. Fay. U S Bur Mines Tech Pa 124:1-27 '15
Accidents that could have been prevented. Am Ind 16:25 F '16
Bonehead acts of workmen. il Eng M 51:442-3 Je '16
Conditions of industrial accidents. Sci Am S 80:398 D 18 '15
Illumination and one year's accidents; with discussion. R. E. Simpson. Illum Eng Soc 10:868-82 no 9 '15
Quarry accidents in the United States during the calendar year 1914. A. H. Fay. U S Bur Mines Tech Pa 128:1-43 '15
Report of California industrial accident commission. Eng & Min J 101:208-9 Ja 29 '16
Two instructive accidents from chemical engineering practice. J. W. Rupert. diag Met & Chem Eng 14:66-7 Ja 15 '16
See also Boiler explosions; Coal mines and mining—Accidents and explosions; Coke ovens—Accidents; Electricity, Injuries from; Explosions; First aid in illness and injury; Metallurgical plants—Accidents; Mine accidents; Mining engineering—Safety measures; Railroads—Accidents; Safety devices and measures; Workmen's compensation
- Accidents at sea.** See Safety at sea
- Accountancy boards**
Accountancy legislation in District of Columbia and Kentucky. J Account 21:206-14 Mr '16
- Accountants**
Relation between the accountant and the efficiency engineer. C. E. Knoepfel. J Account 21:101-13 F '16
See also Auditing; Cost accounting
- Accountants, Public**
National accounting standard. S. Walton. J Account 21:464-6 Je '16
Qualifications and responsibilities of public accountants. J. E. Masters. J Account 22: 433-42 D '16
Receivers and public accountants. W. P. Barrows. J Account 21:1-15 Ja '16
What is a certified public accountant? W: P. Musaus. J Account 20:438-50 D '15
See also Institute of accountants in the United States of America
- Law**
Accountancy in Idaho. B. Defenbach. J Account 21:50-1 Ja '16
Accountancy legislation in District of Columbia and Kentucky. J Account 21:206-14 Mr '16
New C. P. A. law of Maryland. J Account 21: 446-9 Je '16
- Accountants in the United States of America, Institute of.** See Institute of accountants in the United States of America
- Accounting**
Accounting and business procedure as applied to the construction of large irrigation projects. C: E. Bee. Eng & Contr 45:269-74 Mr 22 '16
Accounting and modern industry. J: R. Wildman. Elec Ry J 48:793-5 O 14 '16
Accounting at Pasadena plant. L. R. W. Allison. Power 44:413-14 S 19 '16

Accounting—Continued

- Accounting for the contractor. B: L. Lathrop. Eng Rec 73:685, 717-18, 750, 782, 811, 843; 74:25-6, 57-8, 89-90, 119-20 My 20-Jl 22 '16
- Accounting problems in the cane sugar industry. J. B. Keyes. J Account 22:35-42 Jl '16
- Accounting procedure for state universities. W: B. Castenholz. J Account 21:81-92, 167-75 F-Mr '16
- Classification and certification of profits. J: R. Lynn. J Account 21:255-60 Ap '16
- Contractors' accounts. T. E. Ross. J Account 21:161-6 Mr '16
- Designing of accounting systems. E. E. Staub. J Account 20:430-7 D '15
- Field-office accounting. B: L. Lathrop. Eng Rec 74:150, 181-2, 211, 242 Jl 29-Ag 19 '16
- Fundamentals of investment securities accounting. E. H. Griswold. J Account 22:338-42 N '16
- Industrial accounting. F. J. Knoepfel. J Account 21:431-40; 22:16-27, 90-100, 177-86, 245-52, 353-60, 417-32 Je-D '16
- Inter-branch accounts. S. Walton. J Account 21:470-3 Je '16
- Loose leaf accounting for state secretaries of master plumbers' associations. Metal Work 85:610-11 My 5 '16
- Office methods for a small contracting business. C. M. Cobb. Eng & Contr 45:317-21 Ap 5 '16
- Principles of depreciation accounting. R. G. Klotz. Ind Management 52:164-76 N '16
- Rational plant units for depreciation accounting. R. G. Klotz. Eng N 75:23-4 Ja 6 '16
- Salmon industry accounting. E. J. Miner. J Account 22:361-78 N '16
- Stores accounting. W. A. Sauer. Am Gas Light J 104:314-17 My 15 '16
- System of accounts for country clubs. E: T. Krach. J Account 22:270-87 O '16
- System of accounts for retail merchants. U S Fed Tr Comm 19p Jl 15 '16; Same. Dom Eng 76:359-61, 393-5 S 9-16 '16; Same. Metal Work 86:564-6, 622-5 N 3, 17 '16
- See also* Auditing; Automobile industry—Accounting; Balance sheets; Bookkeeping; Business; Card system in business; Corporations—Accounting; Cost accounting; Counties—Accounting; Depreciation; Electric railroads—Accounting; Farm accounting; Financial statements; Foundry accounting; Government accounting; Highway accounting; Interest; Inventories; Mine accounting; Municipal accounting; Plumbing trade—Accounting; Printing; Practical—Accounting; Profit; Railroads—Accounting; Sinking funds; Street railroads—Accounting; Waterworks—Accounting
- Accounting, Municipal.** *See* Municipal accounting
- Accumulators.** *See* Storage batteries
- Acetates**
- Acetyl derivatives of the sugars. C. S. Hudson. J Ind & Eng Chem 8:380-2 Ap '16
- Isomeric tetracetates of xylose, and observations regarding the acetates of melibiose, trehalose and sucrose. C. S. Hudson and J. M. Johnson. Am Chem Soc J 37:2748-53 D '15
- Acetic acid**
- Industrial alcohol, acetone, acetic acid; discussion. J Ind & Eng Chem 8:954-8 O '16
- Acetone**
- Determination of acetone in systems of methyl alcohol, water and potassium fluoride. G. E. Frankforter and L. Cohen. Am Chem Soc J 38:1136-41 My '16
- Industrial alcohol, acetone, acetic acid; discussion. J Ind & Eng Chem 8:954-8 O '16
- Acetylene**
- Action of acetylene on metals. Sci Am S 81:11 Ja 1 '16
- Colorimetric determination of acetylene. E. R. Weaver. Am Chem Soc J 38:352-61 F '16
- Explosibility of acetylene. G: A. Burrell and G. G. Oberfell. U S Bur Mines Tech Pa 112:1-12 '15; Excerpt. Eng & Min J 101:10 Ja 1 '16
- See also* Oxyacetylene flame

Acetylene lamps

- Acetylene-lamp improvements. il diags Eng & Min J 102:792-3 O 28 '16
- Carbic system of lighting. il Munic Eng 49: 240-1 D '15; Eng & Contr 45:26 Ja 5 '16; Munic J 41:438 O 5 '16
- Carbide candle instead of kerosene in oil lamps. il Sci Am 114:359 Ap 1 '16
- Chance acetylene safety lamp. H. M. Chance. il Coal Age 9:580-2 Ap 1 '16
- Convenient lamp for tunnel inspections. G. R. Thayer. il Elec Ry J 48:1117 N 25 '16
- Improvement in carbide lamp. il diags Coal Age 10:596 O 7 '16
- Acid handling**
- Acid cup carrier. diag Metal Work 86:145 Ag 4 '16
- Convenient bottles for soldering acid. il Metal Work 86:10 Jl 7 '16
- Acid-proof materials**
- Acid-proof floor covering for pickling and plating plants. K. Seaver. Metal Ind n s 14: 395 S '16
- Acid-proof mastic for floors and tank linings. D. T. Pierce. Metal Ind n s 14:395 S '16
- Acid-resisting alloys. W. C. Carnell. J Ind & Eng Chem 8:922-3 O '16
- Construction to make battery-room floors impervious to acid. il Elec W 67:433 F 19 '16
- Design of acid-resisting iron apparatus. N. Swindin. diags Met & Chem Eng 15:647-9 D 1 '16
- Acids**
- Electrolysis of nitric acid, sulphuric acid and orthophosphoric acid, using a gold anode. F. H. Jeffery. Met & Chem Eng 13:964 D 15 '15
- See also* Acid handling; Acid-proof materials; Chemistry; also names of acids, e.g. Hydrochloric acid, Nitrous acid, Sulphuric acid, Tartaric acid
- Measurement**
- Electric device for measuring the heights of acid in tanks. M. M. Samuels. diags Elec W 67:1051-2 My 6 '16
- Acids, Fatty**
- Brain cephalin; fatty acids. C. G. MacArthur and L. V. Burton. Am Chem Soc J 38:1375-82 Jl '16
- Acids, Organic**
- Conductivities of certain organic acids in absolute ethyl alcohol. H. H. Lloyd, J: E. Wiesel and H. C. Jones. Am Chem Soc J 38:121-31 Ja '16
- Diethylamino - *m* - hydroxybenzoyltetrachlorobenzoic acid and trichlorodiethylaminoxanthonecarboxylic acid and some of their derivatives. W. R. Orndorff and C. C. Rose. Am Chem Soc J 38:2101-19 O '16
- Relations between the constants of dibasic acids and of amphoteric electrolytes. E. Q. Adams. Am Chem Soc J 38:1503-10 Ag '16
- See also* Hydrazino diacids; Nitromethylsulfobenzoic acid
- Acorns**
- New method of germinating acorns for forest planting. J: W. Harshberger. il Am For 22: 687-8 N '16
- Acoustics**
- Elementary acoustics for outdoor speaking. Eng N 76:178-9 Jl 27 '16
- Acoustics, Architectural**
- Correction of echoes and reverberation in the auditorium at the University of Illinois. F. R. Watson and J. M. White. bibliog il diags plans Ill U Eng Exp Sta Bul 87:1-20 '16
- Laws of sound in auditoriums. D. P. Clevens. Eng N 75:817 Ap 27 '16
- Acre conversion table.** *See* Area measurement
- Actinometer**
- Atmospheric pollution in English and Scottish towns. J: B. C. Kershaw. il Engineer 120: 473-5 N 19 '15; Same cond. Met & Chem Eng 13:967-71 D 15 '15; Abstract. Sci Am 115:65+ Jl 15 '16
- Activated sludge method.** *See* Sewage disposal—Activated sludge method
- Adamson eight hour law.** *See* Railroad labor dispute, 1916

Addition compounds

Addition compounds of phenols with organic acids. J. Kendall. *Am Chem Soc J* 38:1309-23 J1 '16

Studies on catalysis; the addition compounds of esters with organic acids. J. Kendall and J. E. Booge. *Am Chem Soc J* 38:1712-36 S '16

Adirondack iron district

Iron ores of the Adirondacks. F. S. Witherbee. *Il Iron Tr R* 59:891-4 N 2 '16; Same with discussion. *Iron Age* 98:1039-42 N 2 '16

Administration

Administration; its principles and their application. W. H. Bell. *J Fr Inst* 182:659-80 N '16

Adsorption

Adsorption of invertase. J. M. Nelson and E. G. Griffin. *Am Chem Soc J* 38:1109-15 My '16

Constitution and fundamental properties of solids and liquids. I. Langmuir. *Am Chem Soc J* 38:2267-86 N '16

Floitation of minerals. R. J. Anderson. *Am Inst Min E Bul* 115:1119-36 J1 '16; Same. *Met & Chem Eng* 15:82-7 J1 15 '16

Ore floitation. W. D. Bancroft. *Met & Chem Eng* 14:631-5 Je 1 '16; Same. *Sci Am S* 82:110-12 Ag 12 '16

Technical applications of capillary and electrocapillary chemistry. W. C. M. Lewis. *Met & Chem Eng* 15:253-9 S 1 '16

Advertisements

Ballade of advertisements; verse. C. Wells. *Inland Ptr* 57:352d Je '16

Central-station advertising. C. H. Seaver. *Elec R & W Elec'n* 69:63-4 J1 S '16

Hand lettering; its application to advertising and commercial forms. *Inland Ptr* 56:496a-496h Ja '16

Illustrations the advertiser ought to use. P. G. Smith. *Il Inland Ptr* 57:365-8 Je '16

Novel shapes in advertising. P. G. Smith. *Il Inland Ptr* 57:653-6 Ag '16

Points on display for compositors. J. L. Frazier. *Inland Ptr* 57:209-12 My '16

Preparation of copy for display advertising. *Il Inland Ptr* 57:247-8 My '16

Printing and advertising combination. J. H. Clayton. *Il Inland Ptr* 56:797-800 Mr '16

Review of newspapers and advertisements. J. L. Frazier. See monthly numbers of the *Inland printer*

Type-faces used in modern advertising. G. P. Farrar. *Il Inland Ptr* 57:377-9 Je '16

Typography. B. Sherbow. *Inland Ptr* 57:615-18 Ag '16

Typography of advertising. S. H. Horgan. *Inland Ptr* 57:43-5 Ap '16

Word and the printer. J. H. Clayton. See monthly numbers of the *Inland printer*

See also Advertising; Booklets; Catalogs

Advertising

Advertising a vital factor in business. F. W. Graham. *Metal Work* 86:441 O 6 '16

Advertising as a business asset. E. W. Sells. *J Account* 21:424-30 Je '16

Advertising club as an ally. J. C. Morrison. *Inland Ptr* 57:241-2 My '16

Advertising in foreign trade. H. M. Kahler. *Am Ind* 16:35 Ja '16

Boosting business by mail advertising. E. Stern. *Metal Work* 85:283+ F 25 '16

Central bureau in Kansas. J. C. Morrison. *Inland Ptr* 57:105-6 Ap '16

Constructive advertising. J. W. Lansley. *Am Gas Light J* 104:211-13 Ap 3 '16

Contract advertising. J. C. Morrison. *Inland Ptr* 56:529-30 Ja '16

Educational advertising and its influence on building. *Eng & Contr* 46:353-4 O 25 '16

Export trade suggestions. U S Bur For & Dom Com misc ser 35:98-107 '16

First assistant. R. Ellis. *Inland Ptr* 57:755-9 S '16

Foreign advertising via industrial service. J. C. Morrison. *Inland Ptr* 56:665-7 F '16

How advertising promotes efficiency; abstract. A. R. Maujer. *Eng M* 50:770 F '16

More news is wanted in advertising. *Automobile* 35:815 N 9 '16

Playing a trump in the electrical advertising game. *Il Elec R & W Elec'n* 67:1164 D 25 '15

Reaching the markets by good advertising.

Metal Work 84:851 D 31 '15

See also Advertisements; Billposting; Business; Catalogs; Electric signs; House organs; Publicity; Salesmen and salesmanship; Show windows; also subdivision Advertising under names of subjects, e.g. Electric service companies—Advertising; Plumbing trade—Advertising; Show cards

Bibliography

List of references on advertising. H. H. B. Meyer. *Special Libraries* 7:61-76 Ap '16

Law

Postal law affecting advertisements. *Dom Eng* 74:6 Ja 1 '16

Rates

One cent a line per thousand. J. C. Morrison. *Inland Ptr* 57:820-1 S '16

What the traffic will stand. J. C. Morrison. *Inland Ptr* 57:673-4 Ag '16

Why not more uniform rates? J. C. Morrison. *Inland Ptr* 57:541-2 J1 '16

Advertising, Professional. See Professional ethics

Aeration

Accurate aeration method for the determination of alcohol in fermentation mixtures. A. W. Dox and A. R. Lamb. *Am Chem Soc J* 38:2561-8 N '16

Efficiency of the aeration method for distilling ammonia; in answer to certain criticisms. P. A. Kober. *Am Chem Soc J* 38:2568-72 N '16

Aeration of sewage. See Sewage disposal—Activated sludge method

Aerial photography. See Photography, Aerial

Aerial propellers. See Aeroplane propellers; Propellers, Aerial

Aerial tramways. See Cableways

Aerial warfare. See Aeronautics, Military; Bomb-proof cellars; European war—Aerial operations

Aerodynamic laboratories

Aerodynamic experiments made in M. I. T. tunnel. *Il Eng N* 74:1129 D 9 '15

United States naval experimental wind tunnel at Washington navy yard. W. M'Entee. *Il diags Int Marine Eng* 21:64-5 F '16; Same. *Sci Am S* 81:229 Ap 8 '16; Same. *Eng N* 75:697-8 Ap 13 '16

Wind tunnel of the Massachusetts institute of technology; abstract. J. S. Hunsaker. *Am Soc M E J* 38:499-500 Je '16

Aerodynamics

Aerodynamical experiments upon a yacht's mainsail. H. A. Everett. *Int Marine Eng* 20:546-1 D '15

Dimensional theory of wind tunnel experiments; abstract. E. Buckingham. *Am Soc M E J* 38:498-9 Je '16

Present state of aerodynamics; abstract. L. Marchis. *Am Soc M E J* 38:343-4 Ap '16

Vibratory whirls in air; abstract. S. Périsse. *Il Am Soc M E J* 38:508-9 Je '16

See also Aerodynamic laboratories; Air; Air flow; Flight

Aeronautic motors. See Aeroplane motors

Aeronautics

Aeronautics in 1915. *Engineer* 121:17 Ja 7 '16

Course in aeronautical engineering. *Eng Rec* 73:135 Ja 29 '16

Froude's law for the airship. G. Greenhill. *Engineer* 121:422-3 My 19 '16

National advisory committee for aeronautics. *Sci Am* 114:140, 504 F 5, My 13 '16

Retrospect of the year 1915; aeronautics. *Sci Am* 114:7 Ja 1 '16

Small oscillations of a kite; abstract. G. H. Bryan. *Am Soc M E J* 38:355 Ap '16

Standards for aircraft. H. Souther. *Automobile* 34:1023 Je 8 '16

See also Aerodynamic laboratories; Aerodynamics; Aeroplane motors; Aeroplane stability and stabilizers; Aeroplanes; Airships; Aviation; Balloons; Flight; Flying boats; Sea planes

Aeronautics —Continued**Accidents**

Aeroplane accidents; causes and remedies; abstract. R. C. Sauflay. *Am Soc M E J* 38: 748 S '16

Signals

New aviation beacons that make safe the landing of aircraft at night. R. G. Skerrett. *il diag Sci Am* 114:463 My 6 '16

Aeronautics, Military

Aeronautics in the great war; the captive balloon, and the important work it performs. *il Sci Am S* 82:216-18 S 30 '16

Aeroplane dreadnought. *Sci Am* 113:514 D 11 '15

American all-steel battleplane with turrets at plane tips. *il Sci Am* 114:57 Ja 8 '16

Anti-aircraft guns. *il Sci Am* 114:640-1 Je 17 '16

Armor-plating an aeroplane. L. d'Orcy. *Sci Am* 115:301 S 30 '16

Development of the military aeroplane. F. W. Lanchester. *Sci Am S* 81:364-5 Je 3 '16

Dropping bombs from airships. C. S. Starworth. *Sci Am S* 81:251-Ap 15 '16

Fangs of a bombarding warplane. *il Sci Am* 115:407 N 4 '16

Fighting in the air. *Sci Am S* 81:39 Ja 15 '16

German military aeroplanes; the Fokker type and its French prototype. *il diag Sci Am S* 82:164 S 9 '16

High angle fire at aircraft. G. Greenhill. *Engineer* 122:36-7 Jl 14 '16

Interim report of the British air inquiry committee. *Engineer* 122:160-1 Ag 25 '16

Mastery of the air vs. control of the sea; Zeppelins as observation towers for the German fleet. L. d'Orcy. *il Sci Am* 114:637+ Je 17 '16

New developments in military aeroplanes. L. d'Orcy. *il Sci Am* 114:147+ F 5 '16

New form of the fighting aircraft. R. G. Skerrett. *il Sci Am* 113:513+ D 11 '15

New use for aeroplanes; feeding a beleaguered army in Mesopotamia. *il Sci Am S* 82:100 Ag 12 '16

Our blind army; precarious condition of the United States army in aeronautical equipment. *il Sci Am* 115:11+ Jl 1 '16

Scientific bomb dropping; sighting devices for aircraft bombs. *il Sci Am S* 81:260 Ap 22 '16

Super-Zeppelins. L. d'Orcy. *il Sci Am* 114: 503+ My 13 '16

Throwing bombs from airships. A. Buttner. *il Sci Am S* 81:85 F 5 '16

Transparent aeroplane. N. A. Truslow. *Sci Am* 113:539 D 18 '15

War aeroplane here and abroad. B. Williams. *Sci Am* 115:412 N 4 '16

Widening the range of the fleet's eyes by means of the aeroplane catapult. R. G. Skerrett. *il Sci Am* 114:295 Mr 18 '16

Zeppelins as battleship destroyers. *Sci Am* 114:376 Ap 8 '16

See also Aeroplane guns; Airships; Balloons; European war—Aerial operations; Flying boats

Aeroplane bombs. *See* Projectiles

Aeroplane catapult. *See* Sea planes

Aeroplane guns

Gun that shoots both ways at once. *il Sci Am* 115:284 S 23 '16

Non-recoil guns for aeroplanes. *Mach* 22: 1103 Ag '16

Aeroplane motors

Aeronautical engines; abstract. *Am Soc M E J* 38:928-9 N '16

Aviation engines. J. G. Vincent. *il Automobile* 34:1016-18 Je 8 '16

Effect of altitude on engines. *Sci Am S* 82: 351 N 25 '16

Effect of the war on aeroplane engine design. G. Pollock. *il Automobile* 35:431-3+ S 14 '16

Germans copy Gnome aeroplane motor. *il Automobile* 34:1008 Je 8 '16

Martin aviation engine unique design. *il Automobile* 35:188-9 Ag 3 '16

New Thomas 135 H. P. aeromotor. R. Ware. *il Sibley J* 31:45-7 N '16

Packard 300 cu. in. twelve for aviation. *il Automobile* 34:795-8 My 4 '16

Steam power for aeroplanes. J. G. Dudley. *Sci Am S* 81:350-1 My 27 '16

Thomas aero motor compact and powerful. *il Automobile* 34:362 F 24 '16

Wisconsin adds aviation engine. *il diag Automobile* 35:18-19 Jl 6 '16

Wisconsin aviation engines. *il Horseless Age* 37:440 Je 1 '16

See also Aeronautics

Testing

Knox aviation twelve tested. *il diag Automobile* 35:856-9 N '16

Testing aeroplane motors with a fan dynamometer. L. Hodgson. *diag Automobile* 34: 627-9 Ap 6 '16

Aeroplane parachutes. *See* Parachutes

Aeroplane propellers

Wadkin propeller shaping machine. *il Am Soc M E J* 38:84 Ja '16

Aeroplane stability and stabilizers

Characteristics of certain resisting surfaces and screws; abstract. G. H. Bryan. *Am Soc M E J* 38:498 Je '16

Dynamical stability of aeroplanes. J. C. Hunsaker. *Sci Am S* 82:11 Jl 1 '16

Stability of aeroplanes; abstract. O. Wright. *Sci Am S* 81:320 My 13 '16

Aeroplanes

Aeroplane building, past and present. L. Goldmerstein. *Iron Age* 97:199 Ja 20 '16

Aeroplane dreadnought. *Sci Am* 113:514 D 11 '15

Aeroplane in Arctic exploration. R. M. McConnell. *il Sci Am* 115:295 S 30 '16

Aeroplane struts. *diag Sci Am S* 81:293 My 6 '16

Aeroplane, with special regard to mechanics of flight and stabilization; abstract. L. Goldmerstein. *Am Soc M E J* 38:262-3 Mr '16

Aeroplanes for sport and utility. M. C. Krarup. *Automobile* 35:27-8 Jl 6 '16

American all-steel battleplane with turrets at plane tips. *il Sci Am* 114:57 Ja 8 '16

Armor-plating an aeroplane. L. d'Orcy. *Sci Am* 115:301 S 30 '16

German military aeroplanes; the Fokker type and its French prototype. *il diag Sci Am S* 82:164 S 9 '16

Giant Sikorsky aeroplane. *il Eng M* 50:628 Ja '16

Introducing the triplane among the made-in-America aircraft. *il Sci Am* 115:407 N 4 '16

Investigations conducted on materials used in aeroplane construction; abstract. J. S. Macgregor. *Am Soc M E J* 38:1033-4 D '16

New American aeroplane in which exposed wires are entirely eliminated. *il Sci Am* 115:215 S 2 '16

New developments in military aeroplanes. L. d'Orcy. *il Sci Am* 114:147+ F 5 '16

Scientific research in aeroplane construction at the factory of the Curtiss aeroplane and motor corporation; abstract. *diag Am Soc M E J* 38:749-50 S '16

Telethermometer for aeroplanes. *Sci Am* 115: 408 N 4 '16

Transparent aeroplane. N. A. Truslow. *Sci Am* 113:539 D 18 '15

Trend of American aeronautics toward giant aircraft. *il Sci Am* 114:512 My 13 '16

See also Aeronautics; Aeroplane guns; Aeroplane motors; Aeroplane propellers; Aeroplane stability and stabilizers; Flying boats; Sea planes

Africa, Portuguese East

See Mozambique—Industries and resources

Agency. *See* Contracts; Receivers

Agitators

Laboratory cyaniding agitator. R. B. Ladoo. *il Eng & Min J* 101:440 Mr 4 '16

Propeller slimes agitator. R. Wheeler. *diag Eng & Min J* 102:140 Jl 15 '16

See also Dorr agitator

Agricultural chemistry

Development of a dynamic theory of soil fertility. F. K. Cameron. *J Fr Inst* 181:27-49 Ja '16

Agricultural chemistry—Continued

Principles of crop production. E. J. Russell. *il Sci Am S 82:28-31 J1 8 '16*
 Proposed rapid method for the analysis of limestone for agricultural processes. A. S. Behrman. *J Ind & Eng Chem 8:42-5 Ja '16*
See also Ammonia; Botanical chemistry; Fertilizers and manures; Insecticides; Limesulphur solutions; Nitrification; Soil analysis; Soils

Agricultural colleges

New group of agriculture buildings at Cornell university. *il plans Brickb 25:81-8 Ap '16*
 Stock judging pavilion at University of Illinois. *il plans Brickb 25:89-90 Ap '16*

Agricultural credit

Rural credits necessary if irrigation enterprises are to succeed. E. Gillette. *Eng Rec 72:783-90 D 25 '15*

United States

Federal farm loan act. S. Walton. *J Account 22:222-8 S '16*

Agricultural exhibitions

Royal agricultural show at Manchester. *Engineer 121:526-7, 548-9; 122:4-5 Je 23-J1 7 '16*

Agricultural machinery

Advance in cost of farm machinery. H. A. Russell. *Iron Age 98:289-90 Ag 10 '16*
 America to restock the world with farm machinery. *Sci Am 115:424-5 N 4 '16*
 Farm motor machines at British show. *il diag Automobile 35:153-4 J1 27 '16*
 Markets for agricultural implements and machinery in Argentina. F. H. von Motz. *U S Bur For & Dom Com 125:1-86 '16*
 Portent of electric farm machines. M. C. Krarup. *diags Automobile 35:155-7 J1 27 '16*
 Royal agricultural show at Manchester. *il Engineer 121:526-7, 548-9; 122:4-5 Je 23-J1 7 '16*
 Smithfield club show. *il diags Engineer 120:550-2, 574-6 D 10-17 '15*

See also Farm engines; Motor plows; Tractors

Agriculture

See also Agricultural chemistry; Agricultural credit; Agricultural machinery; Drainage; Electricity on the farm; Farm accounting; Farm produce; Marketing of; Farms; Feeding and feeding stuffs; Fertilizers and manures; Forests and forestry; Frost protection; Irrigation; Live stock; Soils; Trees; also names of crops, e.g. Alfalfa, Flax, Wheat

Accounting

See Farm accounting

Study and teaching

Nature-study in agriculture. H. N. Goddard. *Sci Am S 81:22-3 Ja 8 '16*

See also Forestry schools and education

France

Agriculture in France during the war. *Sci Am S 81:103 F 12 '16*

Germany

German agriculture. T. H. Middleton. *Sci Am S 82:231 O 7 '16*

New England

Relation of New England agriculture to manufacturing. K. L. Butterfield. *Textile World 51:2095+ Ap 29 '16*

United States

Agricultural preparedness; what the government is doing toward better production and distribution. C. J. Brand. *il Sci Am 115:154-5 Ag 12 '16*

Agricultural unpreparedness. G. Dawe. *Sci Am 114:596 Je 3 '16*

Government experts discourage American drug plant farming. L. W. Thavis. *Sci Am 115:333 O 7 '16*

Growing of drug plants in the United States. L. W. Arny. *Sci Am S 82:350-1 N 25 '16*

See also Irrigation—United States; Reclamation service (United States)

Air

Modern air; facts relating to air and ventilation in relation to health. J. F. Norton. *Sci Am S 82:10 J1 1 '16*

Radio-active substances in the air and atmospheric fog; a study of atmospheric conditions of importance to the aviator. *il Sci Am S 81:37-8 Ja 15 '16*

To determine weight of air. *Mach 22:699 Ap '16*

Wet and dry air compared. *Coal Age 9:609 Ap 1 '16*

See also Aerodynamics; Air conditions; Air flow; Air washing; Atmospheric electricity; Atmospheric pressure; Compressed air; Humidity; Hygrometers; Liquid air; Mine air; Oxygen; Ozone; Psychrometry; Ventilation

Analysis

Gas and hygiene. M. von Gruber. *plans Am Gas Light J 104:18-22 Ja 10 '16*

Gas lighting and hygiene. R. F. Pierce. *Am Gas Light J 104:321-2 My 22 '16*

Air, Compressed. *See* Compressed air

Air, Liquid. *See* Liquid air

Air brake association

23d annual convention, Atlanta, Ga., May 2-5. *Ry Age 60:1039-42 My 12 '16; Ry Mech Eng 90:299-304 Je '16*

Air brake hose

Robinson automatic train pipe connector. *il Ry R 59:122 J1 22 '16; Ry Mech Eng 90:482-3 S '16; Sci Am 115:355 O 14 '16*

Air brakes

Air brake association 23d annual convention. *Ry Age 60:1039-42 My 12 '16; Ry Mech Eng 90:299-304 Je '16*

Air brake for motor trucks. *il Sci Am 113:544 D 18 '15*

Air brake history. H. C. Woodbridge. *Ry Age 60:250 F 11 '16*

Air brake maintenance. J. P. Kelly. *Ry Mech Eng 90:352-3 J1 '16*

Brakes, couplers and other safety devices. *il diags Elec Ry J 48:636-40 S 30 '16*

Car foreman's responsibility for air brake conditions. L. Wilcox. *Ry R 58:811-12 Je 10 '16; Same cond. Ry Mech Eng 90:134 Mr '16*

Clasp brakes for heavy passenger equipment cars. T. L. Burton. *il diags Ry Age 61:855-9 N 10 '16*

Combined automatic and straight air on French passenger equipment. W. G. Landon. *diag Ry Mech Eng 90:442 S '16*

Education of air brake mechanics. C. M. Drennan. *Ry R 58:745-7 My 27 '16; Same cond. Ry Age 60:1040 My 12 '16; Same cond. Ry Mech Eng 90:301-2 Je '16*

Effect of moisture in the air brake system. *Ry Age (Mech ed) 89:623-4 D '15*

Empty and load freight brake equipment. W. V. Turner. *diags Ry Age 60:843-5 Ap 14 '16; Same. Ry Mech Eng 90:355-7 J1 '16*

Abstract. *Am Soc M E J 38:430-1 My '16*

Equipment for air-brake instruction. G. O. Smith. *il Elec Ry J 47:321-2 F 12 '16*

Hints on compressor maintenance. R. H. Parsons. *diags Elec Ry J 47:176-7 Ja 22 '16*

How the passengers regulate the subway brakes; changes in car's weight made to control the amount of power applied to the shoes. H. T. Wade. *il Sci Am 115:352-3 O 14 '16*

Recent developments in train brake engineering. W. S. Dudley. *Ry Age 60:159-62 Ja 28 '16*

Rectifier prevents frozen air brakes. *il diag Elec Ry J 47:50-1 Ja 1 '16*

Simple method of graphically determining air-brake leverages. H. M. Lloyd. *Elec Ry J 47:370-1 F 19 '16*

Slack action in long passenger trains. *Ry R 58:829-31 Je 10 '16*

Specifications for freight car brake installations. J. S. W. Fralich. *Ry R 58:203-5 F 5 '16*

See also Air brake hose; Brake rigging; Brake shoes; Brakes

Testing

Outfit for testing air-brake apparatus. R. H. Parsons. *plans Elec Ry J 46:1128-9 D 4 '15*

Air brush painting. See Painting, Industrial

Air compressors

- Air compressor outfit. *il Elec W* 67:785 Ap 1 '16
- Air-compressor outfit for home and dental use. *il Elec W* 67:786 Ap 1 '16
- Air regulation for Diesel engine compressors. *il diag Engineer* 121:193 Mr 3 '16
- Automatically controlled motor-driven air-compressor plant. *il Elec R & W Elec'n* 68:169 Ja 22 '16
- Balanced piston steam valve gears for Imperial duplex air compressors. *il Eng & Contr* 45:24-5 Ja 5 '16
- Circulating cooling water with compressor air. C: Labbe. *diag Eng & Min J* 100:1007 D 18 '15
- Comparative efficiencies of various types of air compressors. *Eng & Min J* 101:255-6 F 5 '16
- DeLaval turbine-driven compressor. *il Int Marine Eng* 21:92-3 F '16
- Determining the capacity of compressors. P. Diserens. *Iron Age* 97:1438-40 Je 15 '16
- Equipping the modern garage. *il Horseless Age* 37:214-16 Mr 15 '16
- Fuel oil driven compressors. Chicago pneumatic tool co. *il Ry R* 58:219 F 5 '16; *Eng & Contr* 45:159 F 16 '16; *Iron Age* 97:535 Mr 2 '16; *Coal Age* 9:676-7 Ap 15 '16; *Ry Age* 60:910 Ap 21 '16; *Ry Mech Eng* 90:261 My '16; *Power* 44:479-80 O 3 '16
- Garage business; air pressure equipment. P. M. Heldt. *il diag Horseless Age* 38:50-1, 86-7 Jl 15-Ag 1 '16
- Gardner-Rix portable air compressor. *il Munic J* 40:252 F 17 '16
- Gardner-Rix vertical air compressors. *il Munic J* 40:26-7 Ja 6 '16
- Gasoline- or kerosene-driven air compressor. *il Power* 43:545 Ap 18 '16
- High-voltage air compressor by the General electric co. *il Elec Ry J* 47:180 Ja 22 '16
- Horizontal air compressors. *il Munic J* 39:898-9 D 9 '15
- Imperial portable air compressors. *il Munic Eng* 51:30 Jl '16
- Imperial type air compressor. *il Coal Age* 9:676 Ap 15 '16
- Improved air compressor by Sullivan machinery co. *il Coal Age* 10:806-7 N 11 '16
- Ingersoll-Rand Imperial type steam-driven air compressor. *il Foundry* 43:509-10 D '15; *Iron Tr R* 57:1239 D 23 '15; *Mach* 22:340-1 D '15; *Power* 43:79 Ja 18 '16
- Leader air-supply outfit. *il Elec R & W Elec'n* 68:126 Ja 15 '16
- Lyons-Atlas portable air compressor. *il Munic J* 40:315-16 Mr 2 '16; *Eng & Min J* 101:439 Mr 4 '16; *Iron Age* 97:533-4 Mr 2 '16
- Piston valve with automatic cut-off for air compressors. *il Ry Age (Mech ed)* 89:643-4 D '15
- Portable air compressor. *il Iron Tr R* 58:294 F 3 '16
- Portable electric-driven air compressor; Class N-SE mine car. *il Coal Age* 10:73 Jl 8 '16
- Pump cuts down compressor circulating water cost. H. Branson. *il Elec Ry J* 48:542 S 23 '16
- Regulating the capacities of air compressors. *diags Power* 43:151-2 F 1 '16
- Simplify valve—its construction and operation. *diags Eng & Contr* 44:297-8 O 13 '15; *Ry Age (Mech ed)* 89:545-6 O '15; *Eng & Min J* 100:805-6 N 13 '15; *Eng M* 50:sup4-5 N '15; *Int Marine Eng* 20:524 N '15; *Power* 42:615-16 N 2 '15; *Mach* 22:346 D '15; *Coal Age* 8:934 D 4 '15
- Small rotary air compressor. *il diags Engineer* 121:383 My 5 '16
- Tom Hunter, hoisting engineer. W. O. Rogers. *il Power* 43:208-10 F 15 '16
- Turbo-compressor for a Midlands colliery. *Am Soc M E J* 38:827 O '16
- Using Corliss engines with fuel at 40c. per ton. S. W. Symons. *il Coal Age* 9:566 Ap 1 '16
- See also Air pumps; Compressed air

Air conditions

- Air conditioning in a gas mantle plant. *il Heat & Ven* 13:11-17 Jl '16

- Effect of temperature and humidity. F: S. Lee and E. L. Scott. *Metal Work* 86:175-Ag 11 '16
- How to secure sufficient humidity in house air. P. H. Bryce. *plan Dom Eng* 74:5-6 Ja 1 '16
- New ideas in air conditioning. W. E. Watts. *Heat & Ven* 13:27-9 F '16
- Studies in air cleanliness. G: C. Whipple and M. C. Whipple. *diags Am Soc Heat & V* 12:21-21-24 '15; Same cond. *Heat & Ven* 12:23-8 Jl '15
- Test of air conditions in Joseph Sears school. Kenilworth. Ill. E. V. Hill. *il plan Heat & Ven* 13:20-9 My '16
- Ventilating Toledo factories' co., Toledo, Ohio building. *il diags plans Metal Work* 85:214-17 F 11 '16

See also Air—Analysis; Air washing; Dust removal; Humidity; Smoke prevention; Ventilation

Air containers

- Making airtight alloy castings. S. D. Sleeth. *Iron Tr R* 59:659-70 S 21 '16; Same. *Met & Chem Eng* 15:352-3 S 15 '16; Same. *Foundry* 44:480-1 N '16; Same cond. *Mach* 23:132 '16

Air dryers. See Drying apparatus

Air ducts. See Air pipes

Air ejector. See Westinghouse-Leblanc air ejector

Air engines

- History of the American automobile industry. D: Beecroft. *diags Automobile* 34:238-9, 275-F 3-10 '16

Air filters

- Details of zig-zag air filters. *diags Heat & Ven* 13:47-8 O '16

Air flow

- Flow of air and steam through orifices. H. I. Reynolds. *diag Am Soc M E J* 38:953-8 '16
- Flow of air through nozzles; with discussion. T: B. Morley. *diags Engineer* 121:82-4 Ja '16; Abstract. *Sci Am S* 81:197 Mr 25 '16; Abstract. *Am Soc M E J* 38:420-1 My '16
- Flow of air through thin plate orifices. E. C. Hickstein. *Am Soc M E J* 38:216-18; Discussion. 38:218-22 Mr '16
- Measurement of air flow. A. K. Ohmes. *diags Am Soc Heat & V* E 21:450-69 '16; Abstract. *Am Soc M E J* 37:347 Je '16; Discussion. *Am Soc Heat & V* E 21:469-7 '15; Abstract. *Heat & Ven* 12:37-8 O '16
- Measuring the flow of compressed air. T: C. Estep, jr. *Iron Age* 98:1049-50 N 9 '16
- Mechanical principles of the blast furnace. E. Johnson, jr. *diags Met & Chem Eng* 13:35-45 Ja 1 '16
- Peculiarities of air flowing in round ducts; abstract. J. E. Emswiler. *Am Soc M E J* 38:84-5 Ja '16; Same. *Metal Work* 85:213 F '16
- Principle of Bernoulli and its relation to heating and ventilating of a building. S. R. Williams. *diags Heat & Ven* 13:13-15 F '16
- Ventilation as a factor in the economical design of electrical machinery. E. Knowlton. *diags Gen Elec R* 19:595-7 Jl '16
- See also Anemometer; Gas flow; Steam flow

Air lifts

- Air-lift for auxiliary unwatering. *diag Engrg* & *Min J* 101:1112 Je 24 '16
- Air-lift pumping. *Iron Tr R* 58:92 Ja 6 '16
- Air-lift pumps and compressor capacities. *Power* 43:636-7 My 2 '16
- Air-lifts at a cyanide plant. P. W. Gaebler. *diags Eng & Min J* 102:46-7 Jl 1 '16
- Air pressure required for air lift. T: F. Crawford. *Power* 44:728-9 N 21 '16
- Artesian wells and methods of pumping them. J: D. Kilpatrick. *Am Water Works Assn* 2:647-9 D '15
- Efficiency of 59 per cent obtained with air lift. *Eng Rec* 73:737 Je 3 '16
- Efficiency of the air lift. A. H. Ford. *il Am Water Works Assn J* 3:229-35 Mr '16
- Pneumatic pumping as applied to municipal plants. J: Oliphant. *diags Am Water Works Assn J* 3:192-200 Mr '16

Air lifts—Continued

- Pumping 7,500,000 gallons daily by air lift. *diag Eng N 76:204 Ag 3 '16*
 Quebec air-lift pump raises water 495 feet. *plan Eng N 75:112 Ja 20 '16*
 Restoring flood-wrecked well and pumping system. A. C. Francis. *il Eng N 76:980-1 N 23 '16*
 Tests showing high air lift pump efficiency. *Eng & Contr 46:137-8 Ag 9 '16*
 Water problem at the Old Dominion mine. P. G. Beckett. *diag Am Inst Min E Bul 112:697-9 Ap '16*; Same (Air lifts). *Eng & Min J 101:859 My 13 '16*
 Wider uses of compressed air. H. F. Porter. *il Factory 16:447-50 My '16*

Air measurement

See also Air flow; Anemometer

Air moisteners. *See* Humidity**Air pipes**

- Canvas air duct in tunneling. *il Eng M 51:sup 4 Ap '16*
 Chart for figuring round and rectangular ventilating ducts. C. A. Fuller. *Heat & Ven 13:18-20 Ag '16*

Air pollution

- Atmospheric pollution in English and Scottish towns. J. B. C. Kershaw. *il Engineer 120:473-5 N 19 '15*; Same cond. *Met & Chem Eng 13:967-71 D 15 '15*; Abstract. *Sci Am 115:65-+ J1 15 '16*
 Smoke as a source of atmospheric pollution. W. F. M. Goss. *il maps J Fr Inst 181:305-38 Mr '16*

See also Air washers; Air washing; Ventilation

Air pressure. *See* Atmospheric pressure**Air pumps**

- Alberger centrifugal air pump. *il Power 43:285-6 F 29 '16*
 Globe-Johnston rotary valveless air pump suitable for garages. *il diag Automobile 34:891-2 My 18 '16*
 Radojet air pump. *il diag Int Marine Eng 21:516 N '16*

See also Air compressors; Air lifts

Air purification

See also Air washing; Dust removal; Smoke prevention

Air resistance

See also Air flow

Air-ships. *See* Airships**Air starter.** *See* Automobiles—Starting devices**Air washers**

- Device for washing and cooling air. *il Elec W 67:57 Ja 1 '16*
 Early history of air conditioning. *diags Heat & Ven 13:29-30 J1 '16*
 Humidity and automatic control. H. L. Alt. *diags Heat & Ven 13:21-7 J1 '16*
 Washing and cooling air for steam turbine generators. *diags Heat & Ven 13:30-3 J1 '16*

Air washing

- Is washed recirculated air better than fresh air? *Heat & Ven 13:41-2 O '16*
 Recent tests on recirculation of washed air. G. L. Larson. *il Metal Work 84:675-7+ N 26 '15*; Abstract. *Am Soc M E J 37:723-4 D '15*; Conclusions. *Heat & Ven 13:36-7 F '16*
See also Air washers; Dust removal; Smoke prevention; Ventilation

Airships

- Airships: rigid; semi-rigid and non-rigid. *il Sci Am S 81:356 Je 3 '16*
 Buoyancy of Zeppelins. *Engineer 121:236 Mr 17 '16*; Same. *Sci Am S 81:347 My 27 '16*
 Christmas in the air. C. Dienstbach. *il Sci Am 113:559 D 25 '15*
 Docking Zeppelins. C. Dienstbach. *Sci Am 115:55 J1 15 '16*
 Launching of a 61-ton Zeppelin. L. d'Orcy. *il Sci Am 115:39 J1 8 '16*
 Mastery of the air vs. control of the sea; Zeppelins as observation towers for the German fleet. L. d'Orcy. *il Sci Am 114:637-+ Je 17 '16*
 Novel British airship. L. d'Orcy. *il Sci Am 114:613 Je 10 '16*

Sachsen and other Zeppelins. *Engineer 121:156 F 18 '16*

Super-Zeppelins. L. d'Orcy. *il Sci Am 114:503+ My 13 '16*

War-Zeppelin. C. Dienstbach. *Sci Am S 81:411 Je 24 '16*

War-Zeppelin; why recent mammoth dirigibles exhibit deviation from standard types. C. Dienstbach. *Sci Am 114:619 Je 10 '16*

Zeppelin airships. F. Zeppelin. *il Sci Am S 81:77-9 Ja 29 '16*

Zeppelins and the weather. *Engineer 121:219 Mr 10 '16*

Zeppelins as battleship destroyers. *Sci Am 114:376 Ap 8 '16*

Zeppelins carry four six-cylinder engines. *Automobile 34:899 My 18 '16*

See also Aeronautics; Aeroplanes; Balloons

Alabama power company

Alabama power company's system and its operation. H. H. Dewey and W. E. Mitchell. *il diag map Gen Elec R 19:518-33 Je '16*

Alarms, Burglar. *See* Burglar alarms**Alarms, Electric.** *See* Electric alarms**Alarms, Fire.** *See* Fire alarms**Alaska**

Transportation in Alaska. W. R. Crane. *Eng & Min J 101:347-8 F 19 '16*

Industries and resources

Forests of Alaska. H. S. Graves. *il Am For 22:24-37 Ja '16*

Lands forlorn. *Eng & Min J 102:742-3 O 21 '16*

Steam-electric power plant of Alaska mine. *il Elec R & W Elec'n 67:1097-1100 D 18 '15*

See also Gold mines and mining—Alaska and the Yukon

Railroads

See Railroads—Alaska

Alaska gold mines co.

Abstract of fourth annual report, 1915. *Eng & Min J 101:739-41 Ap 22 '16*
 Operation during September, 1916. *Eng & Min J 102:716 O 14 '16*

Alaska Juneau gold mining co.

Annual report for the year ended Dec. 31, 1915. *Eng & Min J 101:911-12 My 20 '16*

Albany, New York**Architecture**

Albany academy; with measured drawings by J. L. Dykeman and F. J. Ricker. C. B. Cutler. *il Arch Rec 39:132-43, 247-64 F-Mr '16*

Sewerage

Building Albany sewage pump house and grit chamber. S. B. Vernon. *il diags plan Eng N 76:738-40 O 19 '16*

Grit chamber and pump station, Albany sewage-works. J. H. Gregory. *diags plan Eng N 75:1164-6, 1224-7 Je 22-29 '16*

Water supply

Resanding problems at Albany. G. E. Willcomb. *Am Water Works Assn J 3:163-9 Mr '16*

Albany academy

Albany academy; with measured drawings by J. L. Dykeman and F. J. Ricker. C. B. Cutler. *il Arch Rec 39:132-43, 247-64 F-Mr '16*

Alcohol

Accurate aeration method for the determination of alcohol in fermentation mixtures. A. W. Dox and A. R. Lamb. *Am Chem Soc J 38:2561-8 N '16*

Alcohol a substitute for gasoline. F. E. Young. *Munic Eng 51:143-4 O '16*

Boiling and condensing points of alcohol-water mixtures. P. N. Evans. *J Ind & Eng Chem 8:260-2 Mr '16*

By-products of the lumber industry. H. K. Benson. *diag U S Bur For & Dom Com 110:56-9 '16*; Same (Ethyl alcohol from sawdust). *Sci Am S 82:352 N 25 '16*

Determination of small amounts of alcohol and water in ether for anaesthesia. E. Mallinckrodt, Jr., and A. D. Alt. *diag J Ind & Eng Chem 8:807-12 S '16*

Alcohol—Continued

- Ethyl alcohol from wood. F. W. Kressmann. *Met & Chem Eng* 15:78-82 JI 15 '16
- Industrial alcohol, acetone, acetic acid; discussion. *J Ind & Eng Chem* 8:951-8 O '16; Abstract. *Met & Chem Eng* 15:480 O 15 '16
- Method for the determination of alcohol in the presence of phenol. J. Ehrlich. *J Ind & Eng Chem* 8:240-1 Mr '16
- Oxidation of ethyl alcohol by means of potassium permanganate. W. L. Evans and J. E. Day. *Am Chem Soc J* 38:375-81 F '16
- Proposed method for the profitable utilization of waste sulfite liquor. H. V. Tartar. *J Ind & Eng Chem* 8:226-8 Mr '16
- Sugar beet and the gasoline situation. R. B. Smith. *Sci Am* 114:553 My 27 '16
- Utilization of wood waste. A. D. Little. *J Ind & Eng Chem* 8:102-5 F '16; Same. *Met & Chem Eng* 14:133-5 F 1 '16

Alcohol, Physiological effects of

- Alcohol in war. A. Elster. *Sci Am S* 81:179 Mr 18 '16
- What does alcohol do to chickens? *Sci Am* 115:204 S 2 '16

Alcohol as fuel

- Alcohol-benzol fuel. *Automobile* 35:282 Ag 17 '16
- Alcohol—the fuel of the future. B. N. Glick. *diag Automobile* 35:332-4 N 30 '16
- Denatured alcohol as a substitute for gasoline. S. Pike. *Sci Am* 114:449 Ap 29 '16
- Industrial alcohol, acetone, acetic acid; discussion. *J Ind & Eng Chem* 8:954-8 O '16; Abstract. *Met & Chem Eng* 15:480 O 15 '16

Alcoholates

- Molecular weight of some alcoholates of chloral and butylchloral in benzene solution. M. Willcox and R. F. Brunel. *Am Chem Soc J* 38:2533-5 N '16

Alcoholic solutions. See Solutions, Alcoholic**Alcohols**

- Action of oxalyl chloride on primary, secondary and tertiary alcohols. R. Adams and L. F. Weeks. *Am Chem Soc J* 38:2514-19 N '16
- Equilibria in the systems of the higher alcohols, water and salts. G. M. Frankforter and S. Temple. *Am Chem Soc J* 37:2697-716 D '15
- Mono-acetyl-tri-chlorotertiary-butyl-alcohol. T. B. Aldrich. *Am Chem Soc J* 37:2720-3 D '15
- Reaction between alcohols and aqueous solutions of hydrochloric and hydrobromic acids. J. F. Norris, M. Watt and R. Thomas. *Am Chem Soc J* 38:1071-9 My '16
- Reversible replacement of alcohols in aldehyde-alcoholates. M. Willcox and R. F. Brunel. *Am Chem Soc J* 38:1821-41 S '16

Aldehyde alcoholates

- Reversible replacement of alcohols in aldehyde-alcoholates. M. Willcox and R. F. Brunel. *Am Chem Soc J* 38:1821-41 S '16

Aldehyde diacetates

- Condensation of aldehyde diacetates and of phenylhydrazones with 2-thiohydantoin. B. H. Nicolet. *Am Chem Soc J* 37:2753-6 D '15

Alexandria, Egypt**Harbor**

- Harbour and coast defence works at Alexandria. D: E. Lloyd-Davies. *Engineer* 120:612-13 D 24 '15

Alexandria, Virginia**Architecture**

- Colross mansion, Oronoco street; measured and drawn by J. L. Kelster, O. J. Munson and J. A. Weber. *Brickb* 25:205-8 Ag '16

Alfalfa

- Alfalfa seed oil; alfalfa investigation. C. A. Jacobson and A. Holmes. *Am Chem Soc J* 38:480-5 F '16
- Chemical composition of alfalfa as affected by stage of maturity, mechanical losses, and condition of drying. C. O. Swanson and W. L. Latshaw. *J Ind & Eng Chem* 8:726-9 Ag '16

Algae

- Copper sulphate treatment of St. Paul, Minnesota, water supply. N. L. Huff. *il diags Am Water Works Assn J* 3:581-621 Je '16; Abstract. *Eng Rec* 73:804-5 Je 17 '16

- Effect of algae on bicarbonates in shallow reservoirs. S. T. Powell. *Am Water Works Assn J* 2:703-8 D '15
- Preventing growth of algae in water. *Munic Eng* 50:58-9 F '16

See also *Oscillaria prolifica*

Alidade. See Plane table**Alizarine**

- Application of alizarines to worsted yarns. W. C. Robb. *Textile World* 51:3431 Ag 26 '16
- Brief of interested industries recommends duties on indigo and alizarin. *Textile World* 51:3447 Ag 5 '16

Alkalies

- Alkali deposits of California and Oregon. T. M. Skinner, jr. *il Met & Chem Eng* 14:359-60 Ap 1 '16
- Results of relative surface tension measurements of solutions of soap and of solutions of soap and various alkalies. H. G. Elledge and J. J. Isherwood. *J Ind & Eng Chem* 8:793-4 S '16

See also *Ammonia*; *Concrete*, *Effect of alkalies on*; *Potassium*; *Sodium*

- Alkalinity** chart. H. H. Howry. *Eng & Min J* 102:139 JI 15 '16

Alkaloids

- Hydrochloride method for the determination of alkaloids. G. D. Beal and S. E. Brady. *J Ind & Eng Chem* 8:48 Ja '16

Allanite

- Radio-activity of allanite. L. S. Pratt. *Am Inst Min E Bul* 113:865 My '16

Allotropy

- Allotropy and solubilities in water of ammonium bromide. A. Smith and H. E. Eastlack. *Am Chem Soc J* 38:1261-6 JI '16
- Metastability of metals. A. Vosmaer. *Met & Chem Eng* 13:535-6 '953-4 S 1, D 15 '15; Same. *Sci Am S* 80:410; 81:59 D 25 '15, Ja 22 '16
- Thermo-electric method of studying allotropic changes. C. Benedicks. *Engineer* 122:22-3 JI 7 '16; Same. *Met & Chem Eng* 15:337-40 S 15 '16; Same. *Sci Am S* 82:362-3 D 2 '16
- Transformations of pure iron; general discussion at the annual meeting of Faraday society, Oct. 19. *Met & Chem Eng* 13:962-4 D 15 '15; *Sci Am S* 81:6-7 Ja 1 '16

See also *Critical point*

Alloy steel. See Steel alloys**Alloys**

- Acid-resisting alloys. W. C. Carnell. *J Ind & Eng Chem* 8:922-3 O '16; Abstract. *Iron Tr R* 59:826 O 26 '16
- Alloy for lathe tools. *il Iron Tr R* 58:765 Ap 6 '16
- Alloys to resist corrosion; British institute of metals issues report on bronzes and similar alloys. *Automobile* 34:726 Ap 20 '16
- Alloys used in Zeppelin construction. *Metal Ind n* 14:385 S '16
- Choice of alloys for water work design. H. Carpenter. *Am Water Works Assn J* 2:351-8 Je '15; Same abr. *Eng & Contr* 43:333-4 Ap 14 '15; Excerpts. *Metal Work* 85:25 Ja 7 '16
- Developing an acid-resisting alloy. S. W. Parr. *il Iron Tr R* 57:991-4 N 15 '15; Same. *Metal Ind n* 13:457-8 N '15; Abstract. *Am Soc M E J* 37:656-7 N '15; Abstract. *Met & Chem Eng* 13:973 D 15 '15; Abstract. *Foundry* 44:158-9 Ap '16
- Development of practical substitutes for platinum and its alloys, with special reference to alloys of tungsten and molybdenum. F. A. Fahrenwald. *il diags Am Inst Min E Bul* 109:103-49 Ja '16; Summary. *Met & Chem Eng* 14:339 Mr 15 '16
- Electrical resistance of some heat-treated copper-zinc-nickel alloys. F. C. Thompson. *Inst E E J* 54:222-4 Ja 15 '16
- English specifications for alloys for high-speed super-heated steam turbine blading. W. B. Parker. *Metal Ind n* 14:68-71, 114-16 F-Mr '16
- General considerations on heat treatment of alloys; abstract. L. Grenet. *Am Soc M E J* 38:590 JI '16

Alloys *Continued*

- Interesting alloys; non-ferrous combinations with useful qualities. Eng M 50:622-3 Ja '16
- Method for measuring resistivity of molten materials; results for certain alloys. E. F. Northrup and R. G. Sherwood. *il* diags J Fr Inst 182:477-509 O '16
- New development in castings of a heat-resisting and non-corroding alloy, nichrome. *il* Met & Chem Eng 15:159 Ag 1 '16
- Silver-palladium alloy, substitute for platinum, patented by P. R. Heyl. Met & Chem Eng 14:164 F 1 '16
- Solid solutions. Sci Am S 82:38-9 J1 15 '16
- System tungsten-molybdenum. F. A. Fahrenwald. *il* Am Inst Min E Bul 114:1049-55 Je '16
- Tungsten-molybdenum equilibrium diagram and system of crystallization. Z. Jeffries. *il* diag Am Inst Min E Bul 115:1225-36 J1 '16
- See also* Aluminum alloys; Amalgams; Babbitt metal; Brass; Bronze; Copper alloys; Gun metal; Iron alloys; Metallography; Metallurgy; Monel metal; Solder and soldering; Steel alloys

Specifications

- Proposed railway equipment alloy standards. Foundry 44:284-5 J1 '16
- Sand-cast alloy specification difficulties. W. M. Corse. Foundry 44:325-6 Ag '16
- U. S. navy specifications for non-ferrous metals. Foundry 44:462a N '16

Almanacs

- Using the American ephemeris to make your own almanac. F. Campbell. Sci Am S 81:180 Mr 18 '16

Alpaca

- Finishing knitted alpaca coats. W. Davis. Textile World 51:1139 F 19 '16

Alphabet

See also Lettering; Printing

Alsace

- Potash mines in Alsace. Sci Am 114:153 F 5 '16

Alternating currents. *See* Electric currents, Alternating

Alternators. *See* Dynamos

Alum

- Arsenic content of filter alum; with discussion. E. Bartow and A. N. Bennett. Am Water Works Assn J 2:585-95 D '15
- Effect of solutions of filter alum on brass pipe and fittings. G. R. Spalding. Am Water Works Assn J 3:107-10 Mr '16
- Manufacture of sulphate of alumina at the Columbus water softening and purification works. C. P. Hoover. Am Water Works Assn J 2:693-9 D '15; Same. Eng Rec 71:576-7 My 8 '15; Same. Eng & Contr 43:448-9 My 19 '15; Discussion. Am Water Works Assn J 2:699-702 D '15
- Municipal alum manufacture; Kingston-on-Thames. R. H. Clucas. Eng N 76:261 Ag 10 '16
- Omaha coagulant plant uses improved alum process. *il* Eng Rec 74:435 O 7 '16
- Water company makes its own alum and chlorine. Eng N 76:477 S 7 '16

Alumina

- Function of alumina in slags. C. Henrich. Am Inst Min E Bul 119:2081-6 N '16
- Investigation dealing with the occurrence of alumina inclusions in steel. A. Sauveur. *il* Met & Chem Eng 15:149-51 Ag 1 '16; Same. Iron Age 98:180-1 J1 27 '16; Same. Iron Tr R 59:179-80 J1 27 '16
- Operation of the blast furnace. J. E. Johnson, Jr. *il* Met & Chem Eng 14:365-70 Ap 1 '16
- Presence of alumina in steel. G. F. Comstock. *il* Iron Tr R 59:563-7 S 21 '16; Same cond. Iron Age 98:582-4 S 14 '16

Aluminum

- Action of boiling acetic, propionic, and butyric acids on aluminum. R. Seligman and P. Williams. J Fr Inst 181:457-8 Ap '16
- Action of nitric acid on aluminum. R. Seligman and P. Williams. Sci Am S 82:150 S 2 '16

Aluminum and its use in modern aeroplane motor and motor car construction; abstract. J. E. Diamond. Automobile 35:643, 680 O 19 '16

Aluminum dust. Sci Am S 81:301 My 6 '16

Aluminum engines coming in France. W. F. Bradley. *il* Automobile 35:15-17 J1 6 '16

Aluminum in passenger car construction. Ry R 58:307-8 F 26 '16

Aluminum in war munitions. Metal Ind n s 14:7 Ja '16

Aluminum industry. Metal Ind n s 14:11 Ja '16

Aluminum statistics. Eng & Min J 101:81-2 Ja 8 '16

Aluminum welding. H. B. Hoover. *il* diag Mach 22:1032-5 Ag '16

Analyses of aluminum castings for Zeppelins. Foundry 44:481 N '16

Annealing of aluminium. R. Seligman and P. Williams. Met & Chem Eng 15:244 S 1 '16

Autogenous welding of aluminum. Metal Work 86:405-6 S 29 '16

Collapsible aluminum cup. J. P. Sheehy. *il* diags Metal Ind n s 13:489-92 D '15

Composition for welding and soldering aluminium, patent by R. L. Weatherford. Met & Chem Eng 15:657 D 1 '16

Determination of aluminum. C. F. Sidener and E. Pettijohn. J Ind & Eng Chem 8:714-16 Ag '16

Determination of aluminum as oxide. W. Blum. Am Chem Soc J 38:1282-97 J1 '16

Domestic aluminum industry. Metal Ind n s 14:382-4 S '16

Estimating metallic aluminum in aluminum dust. J. E. Clennell. Eng & Min J 101:813-15; 102:309-10 My 6, Ag 12 '16

Extending aluminum's field. J. E. Diamond. Automobile 35:711-12 O 26 '16

History of aluminum. F. C. McMillin. J Ind & Eng Chem 8:474-6 My '16

How aluminum sheets are rolled. *il* Iron Tr R 59:423-4 Ag 31 '16

Industrial giant of recent birth; the importance of aluminum in modern technology necessitates immense new plant in North Carolina. *il* Sci Am 115:366 O 21 '16

Measurements of resistivity and thermal electromotive force. E. F. Northrup. Met & Chem Eng 15:193-7 Ag 15 '16

Melting aluminum chips. H. W. Gillett and G. M. James. U S Bur Mines Bul 108:1-88 '16

Oxy-acetylene welding of aluminum. S. W. Miller. *il* Mach 22:461-7 F '16; Abstract. Eng M 51:122 Ap '16

Powdered aluminum. Metal Ind n s 14:219-20 My '16

Production of aluminum. W. E. Saunders. J Ind & Eng Chem 8:474 My '16

Production of aluminum from clay and other aluminium silicates, patented by G. Mellen. Met & Chem Eng 14:221 F 15 '16

Rapid volumetric procedures for determining combined alumina and basic alumina or free acid in aluminum salts. W. W. Scott. J Ind & Eng Chem 7:1059-61 D '15

Separation of aluminum. L. Kahlenberg and K. P. Young. Eng & Min J 102:551 S 23 '16

Soldering aluminum. Metal Work 85:476-7 Ap 7 '16

Soldering of aluminum as a substitute for welding. Metal Ind n s 14:256-7 Je '16

Soldering of aluminum as a substitute for welding. Sci Am 114:508-9 My 13 '16

United smelting and aluminum company, New Haven, Conn. L. M. Brile. *il* Metal Ind n s 14:86-8 F '16

Welding aluminum automobile bodies. C. R. Sutton. *il* Iron Age 97:937-9 Ap 20 '16; Same. Metal Work 85:577-9 Ap 28 '16; Same abr. Metal Ind n s 14:220 My '16; Same abr. Met & Chem Eng 14:548-9 My 1 '16

Working aluminum at 400 degrees Fahr. E. O. Lawrence. *il* Metal Ind n s 14:35 Ja '16

Aluminum alloys

- Aluminum alloy pistons. M. R. Machol. *il* Horseless Age 36:413-16 N 1 '15
- Aluminum bronze. H. C. H. Carpenter. Sci Am S 81:38 Ja 15 '16
- Aluminum castings and forgings; abstracts. P. E. McKinney. Met & Chem Eng 15:351-2 S 15 '16; Am Soc M E J 38:832 O '16; Iron Age 98:679-80 S 21 '16

Aluminum alloys—Continued

- Analysis of aluminum alloys. W. H. Withey. Eng & Min J 102:141 J1 15 '16
- Binary alloys of aluminum. H. Schirmeister. Eng & Min J 102:854-5 N 11 '16
- New aluminum alloys. J. W. Richards. Metal Ind n s 14:11 Ja '16
- Properties of aluminum bronze alloys. W. M. Corse. il Foundry 43:459-60 N '15; Same. Iron Tr R 57:1137-8 D 9 '15
- Remelting aluminum scrap. Foundry 44:161 Ap '16
- Tests of aluminum bronze. W. M. Corse and G. F. Comstock. Iron Age 98:80-1 J1 13 '16
- See also Calorizing; Magnalium

Aluminum chloride

- Action of anhydrous aluminium chloride upon unsaturated compounds. W. E. Henderson and W. C. Gangloff. Am Chem Soc J 38:1382-4 J1 '16
- Action of aromatic alcohols on aromatic compounds in the presence of aluminum chloride. R. C. Huston and T. E. Friedemann. Am Chem Soc J 38:2527-33 N '16
- Effect of aluminium chloride upon a naphthene base oil in the formation of gasoline, unsaturated and aromatic hydrocarbons. G. Egloff and R. J. Moore. Met & Chem Eng 15:340-50 S 15 '16
- Improvement of high boiling petroleum oils, and the manufacture of gasoline as a by-product therefrom, by the action of aluminum chloride. A. M. McAfee. J Ind & Eng Chem 7:737-41 S '15; Same. Met & Chem Eng 13:592-7 S 15 '15; Same. Sci Am S 81:50-1, 74 Ja 22-29 '16; Same abr. Am Gas Light J 103:293-5+, N 8 '15

Aluminum founding

- Aluminum castings and forgings; abstracts. P. E. McKinney. Iron Age 98:679-80 S 21 '16; Am Soc M E J 38:832 O '16; Met & Chem Eng 15:351-2 S 15 '16
- Aluminum melting furnace. il Engineer 120:462 N 12 '15
- Plant for making electric vacuum cleaners. il Iron Age 98:513-16 S 7 '16

Aluminum hydrates

- Aluminum hydrates in the Arkansas bauxite deposits. D. C. Wysor. Econ Geol 11:42-50 Ja '16; Discussion. L. L. Fermor. Econ Geol 11:686-90 O '16

Aluminum pistons. See Pistons**Aluminum sulphate**

- Manufacture of sulphate of alumina at the Columbus water softening and purification works. C. P. Hoover. Am Water Works Assn J 2:693-9 D '15; Same. Eng Rec 71:576-7 My 8 '15; Same. Eng & Contr 43:448-9 My 19 '15; Discussion. Am Water Works Assn J 2:699-702 D '15

Alunite

- Possible sources of potash in America. F. K. Cameron. J Fr Inst 180:646-8 D '15; Same. Sci Am S 81:34-5 Ja 15 '16

Amalgamation

- Amalgamating copper plates. A. McLaren. Eng & Min J 101:647 Ap 8 '16
- Robbins barrel amalgamator. diag Eng & Min J 102:712 O 14 '16

Amalgams

- Electrical transference in amalgams. G. N. Lewis, E. Q. Adams and E. H. Lanman. diag Am Chem Soc J 37:2656-62 D '15

Amarillo, Texas**Board of city development**

- Municipal commercial club. W. D. Hornaday. il Munic Eng 51:11-12 J1 '16

Ambulance trains. See Hospital trains**Ambulances**

- Motorcycle ambulance of double-decker design. il Sci Am 115:326 O 7 '16
- Mulholland makes de luxe ambulance. Automobile 34:237 F 3 '16

American association for the advancement of science

- Meeting, Columbus, O., Dec. 27-31, 1915. Elec R & W Elec'n 68:55-6 Ja 8 '16

American association of engineers

- American association of engineers; purposes of the organization. F. C. Van Etten. Power 43:418-19 Mr 21 '16
- Boosting and protective unions and professional societies. O. F. Gayton; A. Kneisel. Power 43:266-7 F 22 '16
- 1st annual convention, Chicago, Dec. 10-11. Elec W 66:1391 D 18 '15; Elec R & W Elec'n 67:1096 D 18 '15; Eng & Contr 44:484 D 22 '15; Eng N 74:1196 D 16 '15; Power 42:916 D 28 '15

American association of passenger traffic officers

- 61st annual convention, Washington, D. C., Oct. 17-18. Ry Age 61:693-4, 744 O 20-27 '16

American association of public accountants

- Annual meeting, New York, Sept. 19. J Account 22:296-302 O '16

See also Institute of accountants in the United States of America**American association of woolen and worsted manufacturers**

- 9th annual meeting, New York, Dec. 1. il Textile World 51:23+ D 4 '15

American boiler manufacturers' association

- 28th annual convention, Cleveland, June 19-20. Iron Age 97:1502-3 Je 22 '16; Iron Tr R 58:1365-6 Je 22 '16; Power 44:36-7 J1 4 '16

American bureau of shipping

- New members and managers elected. Int Marine Eng 21:478 O '16
- Reorganization. Int Marine Eng 21:251-2 My '16

American can company

- Decision of Judge Rose in the district court of the United States, district of Maryland. Iron Tr R 58:502-4 Mr 2 '16; Ry R 58:405-7 Mr 18 '16

American chemical society

- Abstracts of discussions at the 53d meeting, New York. J Ind & Eng Chem 8:947-68 O '16
- 52d meeting at the University of Illinois, April 17-21; with program of papers. J Ind & Eng Chem 8:396-9, 462-6 My '16
- 52d meeting, University of Illinois, April 17-21. Met & Chem Eng 14:485-92 My 1 '16
- 53d annual convention, New York, Sept. 25-30. Iron Age 98:772-4 O 5 '16; Iron Tr R 59:700-1 O 5 '16; J Ind & Eng Chem 8:868-78 O '16; Met & Chem Eng 15:379-81 O 1 '16
- 53d meeting of the American chemical society and the second national exposition of chemical industries. J Ind & Eng Chem 8:856-7 S '16

American concrete institute

- Abstracts of papers presented at the 12th annual meeting, Chicago, Feb. 14-17. Eng Rec 73:277-82 F 26 '16
- 12th annual convention, Chicago, Feb. 14-17. Eng N 75:386-7 F 24 '16; Concrete 8:115-23 Mr '16; Ry Age 60:505-7 Mr 17 '16

American concrete pipe association

- Convention, Chicago, Feb. 17. Concrete 8:131-2 Mr '16

American cotton manufacturers association

- Meeting at Atlanta. Textile World 51:1723-5+ Ap 8 '16

American drop forgers' association

- Abstracts of papers at third annual convention, Philadelphia, June 9-10. Iron Age 97:1446-51 Je 15 '16; Am Soc M E J 38:670 Ag '16

American electric railway association

- Amendments to the constitution. W. F. Ham; J. H. Drew. Elec Ry J 47:366-7 F 19 '16
- Committee appointments for 1915-1916. Elec Ry J 47:129-31 Ja 15 '16
- Committee subject assignments for 1915-1916. Elec Ry J 46:1219-20 D 18 '15
- Committee subject assignments for 1916-1917. Elec Ry J 48:1063-4 N 18 '16
- Officers elected at annual convention, Oct. 9-13. Elec W 68:802 O 21 '16
- President's address. C. L. Henry. Elec Ry J 48:756-61 O 14 '16
- Proceedings of the mid-year meeting, Chicago, Feb. 3. Elec Ry J 47:269-72 F 5 '16
- Proposed changes in the constitution. A. W. Brady. Elec Ry J 47:215 Ja 29 '16

American electric railway association—Cont.

Reasons for the amendments to the constitution adopted in Chicago. C: L. Henry. Elec Ry J 47:317-18 F 12 '16
35th annual convention, Atlantic City, Oct. 9-13. diags Elec Ry J 48:802-50 O 14 '16; Eng N 76:762-3 O 19 '16

American electrochemical society

Meeting of Niagara Falls section, Feb. 2. Met & Chem Eng 14:239-41 Mr 1 '16
Report of the papers presented at the meeting of the New York section, Feb. 11. Met & Chem Eng 14:259-65 Mr 1 '16
Symposium on Niagara falls and American electrochemical industries at Washington meeting. il Elec W 67:977-8 Ap 29 '16
29th general meeting, Washington, April 27-29. Elec R & W Elec'n 68:791-2 My 6 '16; Iron Age 97:1076-8 My 4 '16
29th general meeting, Washington, April 27-29; report of proceedings and abstracts of papers. Met & Chem Eng 14:473-84, 507-15 My 1 '16
30th general meeting, New York city, Sept. 27-30. Met & Chem Eng 15:381-4, 475-80 O 1-15 '16; Elec R & W Elec'n 69:622-3 O 7 '16; Iron Age 98:774-6 O 5 '16

American electroplaters' society

Convention to be held in Cleveland, Ohio. H. J. Ter Doest. Metal Ind n s 14:235-40 Je '16
4th annual meeting, Cleveland, O., July 6-8. Metal Ind n s 14:279-83 Jl '16

American foundrymen's association

Cleveland convention; details of the programs of American foundrymen's association and American institute of metals. Foundry 44: 335-43 S '16; Same. Iron Tr R 59:459-66 S 7 '16
Joint convention, Cleveland, Sept. 11. E. E. Thum. Met & Chem Eng 15:375-6 O 1 '16
Presidential address. R. A. Bull. Iron Tr R 59: 523-3 S 14 '16
21st annual convention, Cleveland, Sept. 11-15. Iron Age 98:593-4, 640-6, 673-6 S 14-21 '16; Iron Tr R 59:579-88 S 21 '16; Foundry 44:395-406 O '16

American gas institute

11th annual convention, Chicago, Oct. 17-20. Gas Age 38:471-82 N 1 '16; Am Gas Light J 105:257-8 O 23 '16

American geologist

N. H. Winchell and the American geologist. H. F. Bain. Econ Geol 11:51-62 Ja '16

American good roads congress

6th congress, Pittsburgh, Pa., Feb. 28-Mar. 3. Good Roads n s 11:131-5 Mr 4 '16

American institute of architects

49th annual convention, Washington, D. C., Dec. 1-3. Am Inst Arch J 3:535-54 D '15
Open letter to the members of the 64th Congress of the United States. C: H. Whitaker. Am Inst Arch J 4:239-42 Je '16
Revisions of the constitution and by-laws. Am Inst Arch J 4:28-32 Ja '16

American institute of chemical engineers

8th annual meeting, Baltimore, Jan. 12-15. Met & Chem Eng 14:70, 159-61 Ja 15-F 1 '16

American institute of consulting engineers

Annual meeting, New York, Jan. 17. Eng Rec 73:123 Ja 22 '16

American institute of electrical engineers

A. I. E. E. and the technical committees. D: B. Rushmore. il diags Am Inst E E Pro 35:113-20 F '16
Electrical engineers discuss water power at meeting held at Washington, April 26. Elec R & W Elec'n 68:790-1 My 6 '16; Power 43: 675 My 9 '16
4th midwinter convention, New York city, Feb. 8-9. diags Elec W 67:358-9 F 12 '16

Joint meeting in six cities by long-distance telephone, May 16. Elec R & W Elec'n 68: 882 My 20 '16; Elec W 67:1187-8 My 20 '16; Power 43:754 My 23 '16

Outlook for the work of the A. I. E. E. J. J. Carty. Elec W 67:31 Ja 1 '16

Pacific coast convention, Seattle, Wash., Sept. 5-9. Elec R & W Elec'n 69:498-500 S 16 '16; Elec W 68:622-3 S 23 '16

Philadelphia meeting, Oct. 13. Am Inst E E Pro 35:242-4 N '16; Elec R & W Elec'n 69: 707-8 O 21 '16; Elec W 68:800-2 O 21 '16; Power 44:604-5 O 24 '16

Presidents of the American institute of electrical engineers, 1884-1916; portraits. Elec W 67:1401 Je 17 '16

33d annual convention, Cleveland, June 27-30; abstracts of papers and of discussions. Elec R & W Elec'n 69:4-6, 52-4 Jl 1-8 '16; Elec W 68:4-5, 71-6 Jl 1-8 '16

American institute of metals

Annual convention, Cleveland, Sept. 11-15. Foundry 44:407-10 O '16; Iron Age 98:676-80 S 21 '16; Iron Tr R 59:588-91 S 21 '16; Metal Ind n s 14:411-19 O '16

Cleveland convention; details of the programs of American foundrymen's association and American institute of metals. Foundry 44: 335-43 S '16; Same. Iron Tr R 59:459-66 S 7 '16

Joint convention, Cleveland, Sept. 11. E. E. Thum. Met & Chem Eng 15:375-6 O 1 '16

American institute of mining engineers

Annual meeting, New York, Feb. 14-17. Iron Tr R 58:447-9 F 24 '16

Arizona meeting, Sept. 17-25. Am Inst Min E Bul 120:sup-5-1 D '16; Met & Chem Eng 15:376-7, 481-93 O 1-15 '16; Eng & Min J 102: 553-9 S 23 '16

Institute meeting in Arizona. P. E. Barbour and R. D. Hall. il Eng & Min J 102:695-702 O 14 '16

Iron and steel section meeting, New York, Feb. 16. Iron Age 97:488-90 F 24 '16

Meeting of the Arizona section, Feb. 21-22. Met & Chem Eng 14:331-2 Mr 15 '16

Present state and aims of the A. I. M. E. W. L. Saunders. Eng & Min J 101:435-6 Mr 4 '16

Report of the secretary for the year 1915. Am Inst Min E Bul 110:iv-vi F '16

American international corporation

American engineers enter the foreign field. Eng M 50:674-81 F '16

International opportunity opened to America. C: A. Stone. Elec W 67:9-10 Ja 1 '16

American iron and steel institute

11th general meeting, St. Louis, Oct. 27-28. Iron Age 98:993-9 N 2 '16; Iron Tr R 59:909-11 N 2 '16

American iron, steel and heavy hardware association

Convention, Pittsburgh, May 24-26. Iron Age 97:1314-16 Je 1 '16

American mining congress

Coöperation, the basis of safety, efficiency and conservation, in the use of national mineral resources. C. Scholz. Coal Age 10:839-40 N 18 '16

19th annual convention, Chicago, Nov. 13. Eng & Min J 102:860-1, 916, 952-3 N 11-25 '16; Coal Age 10:848-50, 879-86 N 18-25 '16

American municipalities, League of. See League of American municipalities**American museum of natural history**

Building a cave at the American museum of natural history. W. L. Beasley. il Sci Am 114:470-1 My 6 '16

Copper Queen cave in New York. W. L. Beasley. il Eng & Min J 102:379-80 Ag 26 '16

American pig iron association

Annual meeting, Cleveland, Feb. 18. Iron Tr R 58:444-6 F 24 '16

American public health association

44th annual convention, Cincinnati. Eng N 76:858 N 2 '16

American railway accounting officers, Association of. See Association of American railway accounting officers**American railway association**

Meeting, New York city, Nov. 15. Ry Age 61: 906-10 N 17 '16; Ry R 59:700-1 N 18 '16

Relations between subordinate railroad associations and the A. R. A. C: Burlingame. Ry Age 61:421-2 S 8 '16

Spring meeting, New York city, May 17. Ry Age 60:1101-2 My 19 '16; Ry R 58:741-2 My 27 '16

American railway bridge and building association
26th annual convention, New Orleans, La., Oct. 14-16. Ry Age 61:745-52 O 27 '16; Eng N 76:116 O 26 '16; Ry R 59:385-7 O 28 '16

American railway engineering association

Abstracts of reports made to the annual convention, Chicago, Eng Rec 73:415-18 Mr 25 '16

Committee recommendations accepted at seventeenth annual convention summarized, Eng Rec 73:446 Ap 1 '16

Committee reports, Elec Ry J 47:606-8 Mr 25 '16

New work outlined for committees, Eng Rec 74:223-4 Ag 19 '16

President's address, R. Trimble, Ry R 58:447-50 Mr 25 '16

Proceedings at convention, Mar. 21-23, diag Elec Ry J 47:641-2 Ap 1 '16

Report of annual meeting, Chicago, Mar. 21-23, Eng N 75:320-7 Mr 30 '16

Review, Ry R 58:445-6 Mr 25 '16

17th annual convention, Chicago, Mar. 21-23, Ry R 58:430-8 Mr 25 '16

American railway master mechanics' association

49th annual convention, Atlantic City, June 19, Ry R 58:923-40 Je 21 '16

American railway tool foremen's association
8th annual convention, Chicago, August 24-26, Ry Mech Eng 90:470-80 S '16; Ry Age 61:355-8 S 1 '16; Ry R 59:307-9 S 2 '16

American road builders' association

American road builders' association and the Pittsburgh convention program, II Good Roads n s 11:97-100 F 26 '16

Annual meeting and election of officers, New York city, Nov. 3, Good Roads n s 12:205-6 N 11 '16

Annual meeting, New York, Feb. 4, 1916, Good Roads n s 11:86-7 F 12 '16

Papers presented at the thirteenth annual convention, Good Roads n s 11:110-30, 157-63 Mr 4, Ap 1 '16

13th annual convention, Pittsburgh, Feb. 29-Mar. 3, Eng N 75:482-3 Mr 9 '16; Munic J 40:347 Mr 9 '16

American smelting and refining company

Report for 1915, Eng & Min J 101:577-8 Mr 25 '16

American society for testing materials

Abstracts of papers and discussions at 19th annual meeting, Atlantic City, June 27-30, Eng N 76:87-9, 135-6 Jl 13-20 '16; Iron Age 97:1568-9; 98:24-6+ Je 29-Jl 6 '16; Iron Tr R 59:33-8 Jl 6 '16; Met & Chem Eng 15:10, 59-60 Jl 1-15 '16; Ry Age 61:15-16 Jl 7 '16

Presidential address, M. Merriman, Iron Tr R 58:1429 Je 29 '16

Report of annual meeting, Atlantic City, N. J., June 27-30, Eng N 76:38-41 Jl 6 '16

American society of civil engineers

Activities of the American society of civil engineers, Eng Rec 73:819-20 Je 24 '16

Am. Soc. C. E. house the first engineering society building in America, Eng Rec 73:170 F 5 '16

American society of civil engineers redistricted, map Eng Rec 72:804-5 D 25 '15

Civil engineers headquarters to be in Engineering societies building; memorandum agreement, Am Inst E E Pro 35:sup203-7 S '16

Civil engineers to vote on new headquarters, Eng N 75:244-5 F 3 '16

Deceiving the American society of civil engineers, Eng N 75:570-1 Mr 23 '16

How to increase the usefulness of local societies, Eng Rec 73:322-3 Mr 4 '16

Misconception regarding the plan to move the civil engineers' headquarters, Eng Rec 73:377 Mr 18 '16

Pending question in the civil engineers society, Eng N 75:713 Ap 13 '16

Progress report of special committee of American society of civil engineers on steel columns and struts, Eng & Contr 45:86-9 Ja 26 '16

Shall civil engineers move their headquarters? Eng Rec 73:168-70, 356-8, 427-8, 490-2, 588, 651 F 5, Mr 11, 25, Ap 8, 29, My 13 '16

Should the civil engineers' headquarters be moved? Eng N 75:329-31 F 17 '16

63d annual meeting, New York city, Jan. 19-21, Eng N 75:11-9 Ja 27 '16; Eng Rec 73:125-6 Ja 22 '16

What is the new evidence? Eng Rec 73:239 F 19 '16

American society of heating and ventilating engineers

Final report of the profession's efficiency and welfare committee, Am Soc Heat & V E 21:578-91 '15

New York chapter takes up the problem of "Co-operation among engineers," Heat & Ven 13:46-7 Mr '16

Reports of secretary, treasurer and council, Am Soc Heat & V E 21:10-20 '15

Semi-annual meeting, Detroit, Mich., July 19-21, Dom Eng 76:156-60 Jl 29 '16; Heat & Ven 13:35-44 Ag '16; Metal Work 86:119-23 Jl 28 '16; Power 44:186-7 Ag 1 '16

22d annual meeting, New York, Jan. 18-20, Dom Eng 74:112, 138-41 Ja 22-29 '16; Heat & Ven 13:31-43 F '16; Metal Work 85:160-5 Ja 28 '16

American society of mechanical engineers

Annual report of the council, Am Soc M E J 38:56-61 Ja '16

Industrial preparedness; discussion, Am Soc M E J 38:435-55 Je '16; Same cond, Iron Tr R 58:880-7 Ap 20 '16; Same cond, Iron Age 97:1000-3 Ap 27 '16

Mechanical engineers society pays off its debt, Eng N 76:612 S 28 '16

New officers of the society, Am Soc M E J 38:61-3 Ja '16

Plan of activities for the sections and student branches for the season 1916-17, Am Soc M E J 38:806-8, 908-10 O-N '16

Proposed plan for the activities of the machine shop practice sub-committee, H. K. Hathaway, Am Soc M E J 38:972 D '16

Reports of standing committees, Am Soc M E J 38:1015-20 D '16

Spring meeting, New Orleans, April 11-14, Am Soc M E J 38:313-18, 391-6 Ap-May '16

Spring meeting, New Orleans, April 11-14, Iron Tr R 58:877-87 Ap 20 '16

36th annual meeting, New York city, Dec. 7-10, Am Soc M E J 38:49-56 Ja '16; Elec W 66:1299 D 11 '15; Eng N 74:1195 D 16 '15; Iron Tr R 57:1195-8 D 16 '15; Power 42:878-81 D 21 '15

American society of municipal improvements

Convention papers and committee reports, Good Roads n s 12:196 N 4 '16

23d annual convention, Newark, N. J., Oct. 10-13, Eng Rec 74:488-9, 513-14 O 21 '16; Eng N 76:766-7 O 19 '16; Good Roads n s 12:170-2 O 14 '16; Munic Eng 51:167, 200 N '16; Munic J 41:484-6 O 19 '16

Will it rise to its opportunity? Eng Rec 74:428 O 7 '16

American society of refrigerating engineers

Annual meeting, New York, Dec. 6-8, Power 42:881-2 D 21 '15

American society of sanitary engineering

11th annual meeting, Newark, N. J., Aug. 1-4, Dom Eng 76:223-8 Ag 12 '16; Metal Work 86:187-93 Ag 11 '16

American telephone & telegraph company

Annual report, Elec W 67:639 Mr 18 '16; Same cond, Elec R & W Elec'n 68:495 Mr 18 '16

American uniform boiler law society

Organization, Locomotive 30:245 O '15

American water works association

Abstracts of papers presented at the 36th annual convention, New York city, June 5-9, Eng Rec 73:803-6 Je 17 '16

Aims of American water-works association, N: S. Hill, jr. Eng N 75:1152-4 Je 15 '16

Constitution, list of officers 1916-1917, list of committees 1916-1917, list of members, Am Water Works Assn J Sup 3:1-118 S '16

Letters concerning a union of the two water-works societies, Eng & Contr 46:402-4 N 8 '16

Proceedings thirty-sixth annual convention, New York city, June 5-9, Am Water Works Assn J 3:655-734 S '16

Service of society to its members is urged, N. S. Hill, jr. Eng Rec 73:766 Je 10 '16

American water works association—Continued

36th annual meeting, New York city, June 5-8, Eng N 75:1159-1 Je 15 '16; Munic J 49: 843-6 Je 15 '16

American wood preservers' association

Aims of the wood preservers' association; annual address of the president, J. H. Waterman, Ry R 58:146-7 Ja 22 '16

12th annual convention, Chicago, Jan. 18-20, Elec Ry J 44:166-7 Ja 22 '16; Eng N 75:196 Ja 27 '16; Ry R 58:125-6 Ja 22 '16

12th annual convention, Chicago, Jan. 18-20; abstracts of papers and reports, Ry Age 69: 122-9 Ja 21 '16

Americans in China

Magna charta of China's forestry work, J. Laine, il Am For 23:268-72 My '16

America's electrical week. See Electrical week**Amides**

Pyrogenetic decomposition of amides, R. S. Boehner and C. E. Andrews, Am Chem Soc J 38:2503-5 N '16

Pyrolytic decomposition of amides, R. S. Boehner and A. L. Ward, Am Chem Soc J 38:2505-7 N '16

Amines

Researches on amines; the formation of Schiff bases from β -phenylethylamine and their reduction to alkyl derivatives of this amine, N. A. Shepard and A. A. Ticknor, Am Chem Soc J 38:381-7 F '16

Researches on amines; the structure of vitiatine; synthesis of methylethylenediamine, T. B. Johnson and G. C. Bailey, Am Chem Soc J 38:2135-45 O '16

Researches on amines; the utilization of hypochlorite color reactions in establishing the mechanism of the action of dimethylsulfate on aniline, N. A. Shepard, Am Chem Soc J 38:2507-14 N '16

Amino acids

Newer standpoint in the study of nutrition, P. Haas, Sci Am S 82:359 D 2 '16

Quantitative determination of the amino acids of feedingstuffs by the Van Slyke method, H. S. Grindley and M. E. Slater, Am Chem Soc J 37:2762-9 D '15

Ammeters

Inexpensive substitute for a set of feeder ammeters, C. W. Bates, il diags Elec W 66: 1374-5 D 18 '15

See also Ampere-hour meters

Ammonia

Aeration method for ammonia, B. S. Davison, E. R. Allen and B. M. Stubblefield, diags J Ind & Eng Chem 8:896-9 O '16

British practice in the condensation, washing and scrubbing of coal gas, W. B. Davison, Am Gas Light J 103:410-12 D 27 '15

By-product coal ammonia as a domestic nitrate source, L. A. Riley, Met & Chem Eng 15:112-13 Ag 1 '16

By-products of coke making, W. H. Childs, Iron Tr R 58:1215-18 Je 1 '16; Same, Gas Age 38:172-5 Ag 15 '16

Calculating the quantity of ammonia needed, C. H. Bromley, Power 43:843-4 Je 13 '16

Calculating the quantity of ammonia needed, C. E. Moulson, Power 44:462-3 S 26 '16

Cleaning the ammonia charge at the end of the season, F. W. Frerichs, Power 44:752 N 28 '16

Coal and coke by-products as a source of fixed nitrogen, H. C. Porter, map Met & Chem Eng 15:470-5 O 15 '16; Same (By-products insure preparedness), Iron Tr R 59:725-9 O 12 '16

Coke-oven ammonia for munitions, J. W. Turrentine, J Ind & Eng Chem 8:923-6 O '16

Efficiency of the aeration method for distilling ammonia; in answer to certain criticisms, P. A. Kober, Am Chem Soc J 38:2568-72 N '16

Equations for ammonia based on new experimental material; abstract, F. G. Keyes, diags Am Soc M E J 38:272-3 Mr '16

Experience with ammonia leaks, J. C. Pereno, diags Power 44:729 N 21 '16

Experiments on the waste of ammonia in gas works, W. S. Curphey, Am Gas Light J 104: 9 Ja 3 '16

Flow of superheated ammonia, E. F. Miller, Power 44:605-6 O 24 '16; Same cond. Am Soc M E J 38:939-40 N '16

Flow of superheated ammonia through orifices; abstracts, E. F. Miller, Power 42: 871-4 D 21 '15; Am Soc M E J 38:95-7 Ja '16

Foreign gases and solids in the absorption plant, H. G. Gibson, Power 42:894-5 D 28 '15

Foreign gases in refrigeration, H. J. Macintire, Power 43:800-1 Je 6 '16

Gas liquor from vertical retorts, H. L. Kropf, Gas Age 38:368 O 2 '16

Method of estimating ammonia, G. E. Foxwell, Am Gas Light J 104:269 Ap 24 '16

Nitrogen and nitrates from bituminous coal, C. G. Atwater, Gas Age 38:403-5 O 16 '16

Noncondensable gases in the absorption machine, E. P. McKelvy, Power 43:257-8 F 22 '16

Ostwald process of oxidizing ammonia to nitric acid, F. C. Zeisberg, bibliog Met & Chem Eng 15:299-304 S 15 '16

Presence of nitrites and ammonia in diseased plants, P. A. Boncquet, Am Chem Soc J 38:2572-6 N '16

Production of ammonia from cyanamid, W. S. Landis, Met & Chem Eng 14:87-90 Ja 15 '16; Same, J Ind & Eng Chem 8:156-60 F '16

Production of nitric acid from ammonia by the Ostwald process, G. Schüpphaus, il diags Met & Chem Eng 14:425-6 Ap 15 '16

Quantities of ammonia for refrigeration, A. G. Solomon, Power 43:506-7 Ap 11 '16

Rate of ammonia distillation from water, F. W. Bruckmiller, J Ind & Eng Chem 8: 602-3 Jl '16

Recovery of ammonia from waste liquors, E. L. Knoedler, il diags J Ind & Eng Chem 7:1061-4 D '15; Same, Am Gas Light J 104: 70 Ja 31 '16

Utilization of by-products from coke manufacture, C. G. Atwater, Gas Age 38:276-7 S 15 '16

Value of tar ammonia and benzol products in gas making totalled \$25,000,000 in 1915, Am Gas Light J 105:204 S 25 '16

See also Gas manufacture and works

Ammonia, Synthetic

Manufacture of synthetic ammonia, Gas Age 38:350 O 2 '16

Rôle of chemistry in the war, A. S. Cushman, J Fr Inst 181:180-6 F '16

Synthesis of ammonia, Dr. Zenghelis, Met & Chem Eng 15:318 S 15 '16

Ammonia compressors

Ammonia compressors motor driven in summer, diags Power 43:494 Ap 4 '16

Cause of ammonia compressor trouble, J. C. Hawkins, Power 44:597-8 O 24 '16

Changes to stuffing-box of ammonia compressor, C. Jefferson, diags Power 44:730 N 21 '16

Correcting the alignment of ammonia compressor, T. G. Thurston, il Power 43:365-6 Mr 14 '16

Diagrams of some types of ammonia compressors, W. Schliemann, Power 43:436-7 Mr 28 '16

Displacement of ammonia compressors, P. Neff, Power 43:80 Ja 13 '16

Displacement of ammonia compressors, T. G. Thurston, Power 43:413-14 Mr 21 '16

Displacement of ammonia compressors, W. Schliemann, Power 44:211-12 Ag 8 '16

Emergency repair to piston rod of ammonia machine, C. E. Anderson, il Power 43:452 Mr 28 '16

Henneböhle refrigeration safety device, diags Power 43:879 Je 20 '16

High-efficiency steam ends for ammonia compressors, il Power 44:48-9 Jl 11 '16

Indicating the ammonia compressor, R. H. Karl, il Power 43:586-9, 687-9, 911-13; 44: 121-3, 263-5, 348-9 Ap 25, My 16, Je 27, Jl 25, Ag 22, S 5 '16

Life of ammonia pump rods, D. L. Fagnan, diags Power 44:690 N 14 '16

New departure in ammonia compression, C. H. Bromley, il plan Power 44:228-31 Ag 15 '16

Oiling ammonia-compressor rod, A. Warner, diags Power 44:695 N 14 '16

Packing for ammonia-compressor stuffing-boxes, F. L. Fairbanks, diags Power 43:179-81 F 8 '16

Ammonia compressors—Continued

- Power consumption of ammonia compressors. T: G. Thurston. Power 43:161-2 F 1 '16
 Quincy market safety valve for ammonia compressors; abstract. F. L. Fairbanks. Am Soc M E J 38:97 Ja '16
 Reduced compressor capacity. T: G. Thurston. diag Power 43:742 My 23 '16
 Safety head as discharge valve. S. S. Ledbetter. Power 44:763 N 28 '16
 Should ammonia compressor valves be closed? Power 43:300, 486-7 F 29, Ap 4 '16
 Troubles and care of ammonia compressor valves. A. G. Solomon. diags Power 43:643-5, 767-8; 44:92-3 My 9, 30, Jl 18 '16

Ammonia condensers

- Ammonia condenser data; abstract. H: Torrance. Am Soc M E J 38:600-1 Jl '16
 Ammonia jet condenser. diag Power 43:390-1 Mr 21 '16

Ammonia explosions

- Decomposition of ammonia. R. Plank. Power 42:914-15 D 28 '15
 Explosion of a welded ammonia absorber. il Locomotive 30:238-42 O '15
 Review of some ammonia explosions. C: H. Bromley. il Power 44:621-6 O 31 '16

Ammonium bromide

- Allotropy and solubilities in water of ammonium bromide. A. Smith and H. E. Eastlack. Am Chem Soc J 38:1261-6 Jl '16

Ammonium iodide

- Ammonium iodide, its solubilities and the absence of a transition point. A. Smith and H. E. Eastlack. Am Chem Soc J 38:1500-2 Ag '16

Ammonium salts

- Neutral ammonium salts of some organic acids and their substituted derivatives. L. McMaster and A. C. Magill. Am Chem Soc J 38:1785-1803 S '16

Ammonium sulphate

- Actual yield of ammonium sulphate falls far short of theoretical maximum. T: Gray. Am Gas Light J 105:38-9 Jl 17 '16
 Ammonium sulfate as a source of combined nitrogen. J. W. Turrentine. J Ind & Eng Chem 8:584-5 Jl '16
 Nitrate cake in sulphate of ammonia manufacture. Met & Chem Eng 14:564 My 15 '16
 Oxide purification, and the storage of ammoniacal liquor. N. H. Humphrys. Am Gas Light J 105:362 N 27 '16
 Power with by-product recovery. T. R. Wollaston. Engineer 122:161 Ag 25 '16; Abstract. Iron Age 98:770 O 5 '16

Ammunition

- Production and importation of ammunition for Swiss rifles. Sci Am 115:506 D 2 '16
See also Bullets; European war—Military equipment; Explosives, Military; Munitions of war; Projectiles; Shells (projectiles); Shrapnel shells

Amorphous substances

- Chemistry of amorphous solids. W. H. Lewis. Sci Am S 81:382-3 Je 10 '16

Amortization. See Bonds**Ampere-hour meters**

- Ampere-hour meters on the Annapolis short line. D. E. Crouse. Elec Ry J 47:413-14 F 26 '16
 Applications of the amperehour meter. S. Lynn. il diags Sibley J 30:217-26 Ap '16
 Use of ampere-hour meter and results obtained by Chicago & Joliet electric railway. J. B. Tinnon. Elec Ry J 47:689-90 Ap 8 '16

Amphitheaters. See Stadia**Amplifiers, Magnetic. See Magnetic amplifiers****Amusement parks**

- Electricity at summer amusement resorts. il Elec R & W Elec'n 68:1067-9 Je 10 '16

Amylases. See Diastases**Anabiosis. See Death, Apparent****Anaconda copper mining company**

- Anaconda betterments. Eng & Min J 101:361-2 F 19 '16
 Another engineer's life. D. W. Brunton. Eng M 50:782-3 F '16

Changes in smelting practice of Anaconda copper mining co. F: Laist. il Eng & Min J 102:635-8 O 7 '16

Analysis, Chemical. See Chemistry, Analytic**Analysis, Metallurgical. See Metallurgical analysis****Analysis of food. See Food—Analysis****Anchor bolts**

- Casings for machinery-foundation anchor bolts. B. Page. diags Power 43:12-14 Ja 4 '16; Excerpts. Coal Age 9:630 Ap 8 '16

Anchors

- Steel anchors for merchant and battleships. E. F. Cone. il Iron Age 98:813-15 O 12 '16

Anemometer

- Linear hot-wire anemometer and its applications in technical physics. L: V. King. il diags J Fr Inst 181:1-25 Ja '16
 Measurement of air flow. A. K. Ohmes, il diags Am Soc Heat & V E 21:450-69; Discussion. 469-72 '15
 Proposed electrical methods of recording gas flow in channels and pipes based on the linear hot-wire anemometer. L: V. King. il diags J Fr Inst 182:191-204 Ag '16

Anesthetics. See Ether**Angle trisection. See Trisection of angles****Angles**

- Determining indexing movements for angles; tables. Mach 22:481-3 F '16
 Dividing an angle into five equal parts. A. T. Jones. diags Sci Am 115:61 Jl 15 '16
 Graphical method of measuring angles. Mach 22:803; 23:158 My, O '16
 Sine bar applications; details of construction and methods of obtaining accurate angular work. D. Baker. diags Mach 23:120-4 O '16
 Tapers and angles. S. L. Cook. Foundry 44: 272a Jl '16

Aniline

- Aniline oil poisoning. A: H. Fiske and E. H. Green. J Ind & Eng Chem 8:573 Je '16
 Aniline oil poisoning. W. W. Sanders. J Ind & Eng Chem 8:854-5 S '16
 Industrial poisoning from aniline and allied products. G: P. Adamson. J Ind & Eng Chem 8:1058-62 N '16
 Standard for aniline oil. diag Textile World 51: 3995 S 16 '16

Aniline colors. See Coal-tar colors**Animal electricity. See Electrophysiology****Animal heat**

- Calorimeter as the interpreter of the life processes; a study of the fuel requirements of the human individual. G. Lusk. Sci Am S 81:171 Mr 11 '16

Animal intelligence

- Modern psychology of animals. Sci Am S 80: 406 D 25 '15
 Visual pattern-discrimination in the vertebrates; effective differences in direction of visible striae for the monkey and the domestic chick. H. M. Johnson. J Fr Inst 180: 735-6 D '15

See also Animals, Habits and behavior of

Animal products

See also Gelatin; Glue; Wool

Animals

- See also* Livestock; Phosphorescence; Taxidermy; Zoological gardens; also names of animals, e.g. Armadillos, Horses, Sheep

Animals, Electrocution of. See Electrocution of animals**Animals, Fossil. See Paleontology****Animals, Habits and behavior of**

- How heavy firing affects animals. Sci Am S 82:112 Ag 12 '16
 Living artillery; means of offense and defense which nature has furnished to animals, insects and plants. il Sci Am S 82:104-5 Ag 12 '16
 Protective activities of organisms. B: C. Gruenberg. il Sci Am S 80:404-6 D 25 '15

See also Animal intelligence

Animals, Photographs and photography of

- Making wild animals take their own pictures. W: Nesbit. il diags Sci Am S 81:236-8 Ap 8 '16

Anions

Systematic separation of the anions of group 1; anions whose silver salts are insoluble in nitric acid. H. C. P. Weber and H. A. Winkelmann. *Am Chem Soc J* 38:2000-13 O '16

Annealing

Accurate determination of critical point during annealing, patented by R. B. Fehr. *diag Met & Chem Eng* 15:264-5 S 1 '16

Annealing furnaces; latest gas and electric types. H. Zeitler. *Sci Am S* 81:283 Ap 29 '16

Annealing gray iron castings. W. J. Keep. *Foundry* 44:262 J1 '16

Annealing of aluminium. R. Seligman and P. Williams. *Met & Chem Eng* 15:244 S 1 '16

Annealing properties of copper at temperatures below 500 deg. cent., with particular reference to the effect of oxygen and of silver; abstract; G. V. Caesar and G. C. Gerner. *Am Soc M E J* 38:828-9 O '16

Making car wheels at Lenoir car works; annealing practice of a wheel foundry with side lights on the design and construction of pits. G. S. Evans. *il diags Foundry* 44:19-23 Ja '16

Memorandum on chains and other lifting apparatus. G. S. Taylor. *Iron Age* 97:713 Mr 23 '16; Same cond. (Heat treatment of chains as practiced in England) *Eng & Contr* 45:479-80 My 24 '16

Microstructural changes accompanying the annealing of cast bronze. H. S. Rawdon. *il U S Bur Mines Tech Pa* 60:1-17 '16; Same cond. *J Ind & Eng Chem* 8:109-14 F '16; Excerpts. *Metal Ind n s* 14:207-8 My '16

Recrystallization of cold-worked alpha brass on annealing. C. H. Mathewson and A. Phillips. *il Am Inst Min E Bul* 109:1-50 Ja '16; Abstract. *Am Soc M E J* 38:183-4 F '16

Remington arms company's gas-fired annealing furnaces for rifle parts handle 20-ton charges. *il diags Am Gas Light J* 105: 209-10 O 2 '16; Same cond. *Iron Age* 98: 636-7 S 21 '16; Excerpts. *Am Soc M E J* 38:932-3 N '16

Sheet annealing furnaces. *il diags plan Iron Age* 97:1390-1 Je 8 '16

Tempering and annealing. A. H. Hervey. *Power* 44:168-9 Ag 1 '16

See also Iron

Annunciators

Annunciator with electrically reset device. *il Elec W* 68:288 Ag 5 '16

Proper division of current between annunciators in parallel. C. Rubner. *diag Elec R & W Elec'n* 69:897 N 18 '16

Antarctic exploration

Fate of the Shackleton expedition. *Sci Am* 114:464 My 6 '16

Happy termination of the Shackleton expedition. *Sci Am* 115:261 S 16 '16

Shackleton's south polar expedition. H. Arc-towski. *il map Sci Am* 114:636 Je 17 '16

Antennas. See Wireless telegraph**Anthracene oil**

Waterproofing of mortars by anthracene oil; abstract. R. Feret. *Am Soc M E J* 38:347 Ap '16

Anthracite coal. See Coal; Coal mines and mining

Anti-dumping legislation. See Tariff**Antimony**

Antimony and the war. *Sci Am S* 82:26-7 J1 8 '16

Antimony in Hunan province, southern China. A. S. Wheler. *diag Eng & Min J* 101:637-41 Ap 8 '16; Same cond. *Met & Chem Eng* 14: 374-5 Ap 1 '16; Discussion. *Met & Chem Eng* 14:538-9 My 1 '16

Antimony statistics. *Eng & Min J* 101:79 Ja 8 '16

Antimony supplies and prices. *Eng & Min J* 102:520 S 16 '16

Behavior of stibnite in an oxidizing roast. H. O. Hoffman and J. Blatchford. *Am Inst Min E Bul* 109:91-7 Ja '16; Abstract. *Met & Chem Eng* 14:163-4 F 1 '16; Discussion. *Am Inst Min E Bul* 113:983 My '16

Chemistry in the brass foundry. E. P. Later. *Foundry* 44:469-70 N '16

Determination of antimony in the products obtained by roasting stibnite. W. T. Hall and J. Blatchford. *Am Inst Min E Bul* 109: 99-101 Ja '16; Excerpts. *Met & Chem Eng* 14:164 F 1 '16

Electro-analytical method for the determination and separation of the metals of the copper-tin group. E. P. Schoch and D. J. Brown. *diags Am Chem Soc J* 38:1660-81 S '16

Exportation of antimony from China. *Metal Ind n s* 14:338 Ag '16

Large output of antimony ore. *Eng & Min J* 101:556-7 Mr 25 '16

Separation of the metals of the tin group. J. M. Welch and H. C. P. Weber. *Am Chem Soc J* 38:1011-16 My '16

Antipyrine

Researches on organic periodides; periodides of antipyrine, iodoantipyrine and pyramidone. W. O. Emery and S. Falkin. *Am Chem Soc J* 38:2166-81 O '16

Antiseptics

Iodine as a military antiseptic. *Sci Am* 115: 350 O 14 '16

Iodine wound sterilizer. *il Sci Am* 115:85 J1 22 '16

See also Disinfection and disinfectants; Magnesium hypochlorite; Ozone

Ants

Do ants kill trees about their colonies? R. C. Hawley and S. J. Record. *il Am For* 22:685-6 N '16

Apartment houses

Apartment building, Sheridan Road, Chicago, Ill.; view and plan. *Brickb* 25:pl 16 Ja '16

Apartment house for four families. *il diags plan Bldg Age* 38:37-9 My '16

Apartment house of stucco finish. C. A. Byers. *il diags plans Bldg Age* 38:57-63 S '16

Astor court apartments, Broadway and 89th street, New York city; views and plans. *Arch & Bldg* 48:pl 26-9, sup18-19 Je '16

Barrett apartment house, Chicago. W. D. Foster. *il plans Arch Rec* 39:144-53 F '16

Interesting apartment house plan. *il plan Arch Rec* 40:94-5 J1 '16

New York apartment houses; views and plans. *Brickb* 25:287-8, 289-91, p 175-6 N '16

Two New York apartment houses; views and plans. *Arch & Bldg* 48:10-12 Ja '16

Vapor heating system in Jefferson apartments, Valparaiso, Ind. *il plans Metal Work* 86:637-41 N 24 '16

See also Apartments; Duplex houses; Tenement houses

Apartments

Chicago's one-room apartments. *plan Bldg Age* 38:32 D '16

Compact apartment for the man who does his own housework. *il Sci Am* 114:666 Je 24 '16

Appalachian forest purchases. See Forest reserves

Apparent death. See Death, Apparent

Apple grading machine

Motor-driven apple grading machine of high capacity. *il Sci Am* 114:385 Ap 8 '16

Appraising. See Valuation

Apprentices

Apprentice school. R. J. Hettenbaugh. *Ry Age* (Mech ed) 89:633 D '15

Apprentices; methods for educating young men as metal-trade journeymen. W. H. Parry. *Metal Ind n s* 14:199 My '16

Apprentices on the Southern Pacific. T. G. Gray. *Ry Mech Eng* 90:97-8 F '16

Broad conception of apprenticeship. V. T. Kropidowski. *Ry Mech Eng* 90:146-7 Mr '16

Car department apprentices. E. F. Patram. *Ry Mech Eng* 90:579 N '16

Help the apprentices to help themselves. M. F. Cox. *Ry Mech Eng* 90:40 Ja '16

How an industry trains its men; Santa Fe system. C. O. Price. *il diags Eng M* 52:23-32 O '16

How can I help the apprentice? J. H. Pitard. *Ry Age* (Mech ed) 89:642 D '15

How can I help the apprentice? W. V. Hine-man. *Ry Mech Eng* 90:43 Ja '16

Apprentices—Continued

- Metal workers study in day coach. *il Metal Work* 85:605 My 5 '16
 Modern apprenticeship training. H. L. Burrhus. *Ry R* 59:40-3 Jl 8 '16
 Practical, systematic training of apprentices. *Am Ind* 17:21-9 Ag '16
 Santa Fe apprentice conference, Topeka, May 25-27. *Ry Mech Eng* 90:363-6, 403-5, 415-17 Jl-Ag '16
 Sheet metal workers in the making. O. E. Cluss. *Metal Work* 85:126 Ja 21 '16
 Suggestions on apprenticeship. *Ry Mech Eng* 90:44 Ja '16
 Take a real interest in the apprentice. A. MacCorkindale. *Ry Age (Mech ed)* 89:641 D '15
 Training mechanical apprentices at the Norfolk navy yard. N. E. Adamson, jr. *il Eng M* 50:754-8 F '16
 Training of young men for promotion; the Santa Fe methods; with discussion. F. W. Thomas. *Ry Age* 61:760-3 O 27 '16; Same. *Ry Mech Eng* 90:597-600 N '16
 Views and practices regarding apprentices. W. H. Seed. *Inland Ptr* 56:474-7, 616-19, 760-1; 57:39-41 Ja-Ap '16
 Where are the apprentices; progress board. *il Factory* 17:667 D '16
See also Corporation schools; Industrial education; Schools and shops; Cooperation of

Aprons

- Bright colors on apron cloths. R. Sansone. *diags Textile World* 51:899+ Ja 29 '16

Aqua regia

- Halogenation; chlorination with aqua regia. R. Lal Datta and F. V. Fernandes. *Am Chem Soc J* 38:1809-13 S '16
 Halogenation; the formation of chloropicrin and tetrachloroquinone by the action of aqua regia on organic substances. R. Lal Datta and N. R. Chatterjee. *Am Chem Soc J* 38:1813-21 S '16
 Solution of platinum in aqua regia. C. M. Hoke and R. J. Moore. *Metal Ind n* 5:14:296-8 Jl '16

Aqueducts

- Brooks aqueduct of Canada. *il Sci Am* 114:335+ Ap 8 '16
 Building a pipe-line of concrete. I. F. Springer. *il Sci Am* 115:371+ O 21 '16
 Conduit construction for the Greater Winnipeg water district. *il Munic Eng* 50:13-15 Ja '16
 Construction features of the Greater Winnipeg water supply. J. H. Fuentes. *il map W Soc E J* 20:752-75 N '15; Same. *Eng & Contr* 44:377-80; 45:140-2 N 10 '15, F 9 '16; Excerpt. *Concrete* 8:235-6 My '16
 Diverting an aqueduct during tunnel construction. *Eng N* 75:129 Ja 20 '16
 New Winnipeg aqueduct cracks from foundation settlement. *Eng N* 76:716-17 O 12 '16
 Report on cause and repair of cracks in Winnipeg aqueduct. *diag Eng & Contr* 46:416-17 N 8 '16
 Review of records of concrete casing and lining steel and wood stave pipe siphons. *diags Eng & Contr* 45:416-20 My 3 '16
 Review of records of reinforced concrete inverted siphon construction. *diags Eng & Contr* 45:247-50 Mr 15 '16
 Steel aqueduct for sewer. *il diags Eng N* 75:880-1 My 11 '16
 Traveler for moving steel forms of water conduit. *il Eng N* 74:1276 D 30 '15
 Water supply of Melbourne. *il diags map Engineer* 121:291-2, 374-5 Ap 7, My 5 '16
 Winnipeg aqueduct cracks can be repaired within original cost estimate. *diag Eng Rec* 74:476-7 O 14 '16

See also Catskill aqueduct; Los Angeles aqueduct; Water supply engineering

Arachidic acid

- Improved method for the detection of arachidic acid. R. H. Kerr. *J Ind & Eng Chem* 8:904 O '16

Arbitration, Industrial

- Award of arbitrators in telegraphers' dispute. *Ry R* 59:172-3 Ag 5 '16
 Colorado's new statute for compulsory investigation of industrial disputes. *Ry R* 58:138 Ja 22 '16

Is the compulsory arbitration system doomed?

- Am Ind* 16:41 Jl '16
 Rhode Island arbitration award. *Elec Ry J* 47:30-1 Ja 1 '16
 Suggestion for arbitration. *Ry Age* 61:323 Ag 25 '16

See also Railroad labor dispute, 1916

Arbors

- Lapping arbor centers. *diags Mach* 23:125-6 O '16
 Patternmaker's arbor. S. L. Cook. *diags Foundry* 43:489 D '15

Arc, Electric. *See* Electric arc

Arc lamps. *See* Electric lamps, Arc

Arc welding. *See* Electric welding

Arched bridges. *See* Bridges, Arched

Archaeology

- New archaeological lights on the origin of civilization in Europe. A. Evans. *Sci Am S* 82:258-9, 278-9 O 21-28 '16
See also Baths, Public; Bronzes; Mounds; Temples

Arches

- Building segmental brick arches. W. H. Hefelfinger. *diags Bldg Age* 38:39-41 O; 39-40 D '16
 Choosing the neutral axis curve for reinforced concrete arches. B. J. Lambert. *Eng & Contr* 45:455 My 17 '16
 Design methods in concrete construction—arches with fixed ends. A. M. Wolf. *diags Concrete Cem* 7:137-44, 199-205; 8:80-3 O, D '15, F '16
 Design of symmetrical hingeless concrete arches. V. H. Cochrane. *diags Eng Soc W Pa* 32:647-713 N '16
 Groined arch as a means of concrete floor construction. H. W. Brown. *il diags Boston Soc C E J* 3:439-64 O '16; Excerpts. *Eng & Contr* 46:446-8 N 22 '16
 Mathematical theory of the elastic arch. W. Whited. *diags Eng Soc W Pa* 32:271-304; Discussion. 305-44 My '16
 New formula for the crown thickness of arches. J. P. Schwada. *Eng N* 76:880-2 N 9 '16
 Patent for arch reinforcement declared valid. *diag Eng Rec* 73:274-5 F 26 '16
 Steel arches are designed to eliminate rim tension in oil reservoirs. H. B. Post. *diags Eng Rec* 74:353-4 S 16 '16
 Theory and tests presented for design of sand boxes to lower arch centers. F. P. McKibben. *il diag Eng Rec* 74:530-2 O 28 '16
 38-ft. cobblestone arch raised and moved at Los Angeles, Cal. *il Eng N* 74:1178-9 D 16 '15
See also Architecture; Bridges, Arched; Culverts; Strains and stresses

Architects

- Architect and the civic conscience. *Arch Rec* 39:576-7 Je '16
 Architect vs. engineer. D. H. Maury. *Eng Rec* 73:619-20 My 6 '16
 Architect vs. engineer. M. Deutsch. *Eng Rec* 73:810 Je 17 '16
 Architect vs. engineer, and a sound view on licensing. D. R. Shearer. *Eng Rec* 73:715-16 My 27 '16
 Prevailing fallacy of free plans. N. F. Heggson. *Bldg Age* 38:62 D '16
 Question of advertising the profession of architecture. *Am Inst Arch J* 4:319-20, 371-5, 419-23 Ag-O '16
 Real meaning to architects of the movement for the adoption of the quantity system. S. W. Jones. *Am Inst Arch J* 4:389-93 S '16
 Relations between the architect and the engineer. *Concrete* 8:182-3 Ap '16
 Services of an architect. C. E. Schermerhorn. *Arch & Bldg* 48:9, 11 Ja '16

See also McKim, C. F.; Mills, Robert

Fees

- Fee-plus-cost system of charging for professional services. W. S. Parker. *Am Inst Arch J* 4:200-2 My '16; Same. *Heat & Ven* 13:31-4 S '16

License and registration

- Architects' license law with sweeping provisions. H. K. Higgins. *Eng N* 74:1192-3 D 16 '15

Architects—License and registration—*Continued*
Law for licensing architects in the state of Illinois and its operation. P. B. Wight. Am Inst Arch J 4:462-6 N '16

Law for registration of architects in the state of New York. D. E. Waid. Am Inst Arch J 4:467 N '16

Licensing law for engineers and architects needs revision. F. D. Chase. Eng Rec 74: 180 Ag 5 '16

New York registration law criticised by its friends. P. B. Wight. Am Inst Arch J 4:432-3 O '16

Report of the committee on registration of architects; New York law. Am Inst Arch J 4:358-9 Ag '16

Architects, American institute of. See American institute of architects

Architects' certificates

Competition for design of New York state architects' certificates. il Brickb 25:131-2 My '16

Architectural acoustics. See Acoustics, Architectural

Architectural competitions. See Architecture—Competitions

Architectural design. See Architecture—Designs and plans

Architectural detail. See Architecture—Details

Architectural draughtsmen; Eugene Isabey and his lithographs. H: Winslow. il Am Inst Arch J 4:139-50 Ap '16

Architectural drawing

See also Architecture—Designs and plans; Architecture—Details; Blueprints; Geometrical drawing

Architectural education

Report of the committee on education. Am Inst Arch J 4:357-8 Ag '16

Architecture

Diagrammatic progress schedules. C: A. Whittemore. Brickb 25:8-10, 31-4, 53-6, 91-4 Ja-Ap '16

From Twenty-third street up; the architectural development of Fifth avenue and intersecting streets in New York city. A. Embury. il map Brickb 25:255-60, 281-6 O-N '16

Portfolio of current architecture. See monthly numbers of the Architectural record

Who shall build the bridge between art and thought? a review of "The architecture of humanism," by Geoffrey Scott. A. C. Phelps. Am Inst Arch J 4:59-67 F '16

Work of the Louisiana chapter in urging the preservation of the historic architecture of New Orleans, and in seeking to restore its influence in modern building. N. C. Curtis. il diags Am Inst Arch J 4:219-23 My '16

See also Acoustics, Architectural; Arches; Architects; Armories; Art; Art galleries; Auditoriums; Bank buildings; Barns and stables; Baths, Public; Bridges; Building; Building materials; Buildings; Cathedrals; Chimneys; Church architecture; Clubhouses; College architecture; Columns; Concrete construction; Concrete houses; Cornices; Court houses; Crematorium; Department stores; Domes; Doors; Doorways; Exhibition buildings; Factories; Farm buildings; Fire houses; Fireplaces; Fireproof construction; Floors; Foundations; Garages; Gateways; Grain elevators; Greenhouses; Gymnasiums; Heating; Hospitals; Hotels; House painting; Library architecture; Market buildings; Moving picture theaters; Municipal art; Municipal buildings; Municipal centers; Museums; Naval architecture; Naval reviewing stands; Normal schools; Office buildings; Palaces; Partitions; Plumbing; Police stations; Post office buildings; Printing offices; Public buildings; Public comfort stations; Railroads—Buildings; Railroads—Stations; Roofs; Russell Sage foundation building; Schoolhouses; Scrolls (decorative design); Sheet metal work, Architectural; Stadia; Stair building; Stairways; Steel construction; Store buildings; Strains and stresses; Strength of materials; Tea houses; Temples; Tennis court buildings; Theaters; Tombs; Towers; Trusses; Vaults; Ventila-

tion; Walls; Warehouses; Windows; Woodwork; Young men's Christian association buildings

Competitions

Report of committee of American institute of architects. Am Inst Arch J 3:550-1 D '15

Contracts

See Building contracts

Designs and plans

Experiment in co-operative training in architectural design. il Brickb 25:103-6 Ap '16

Prodigal sun; how his wanderings may be exhibited in connection with building plans. il Sci Am 115:461 N 18 '16

Details

Colonial architecture in Connecticut. W. S. Bessell. il Arch Rec 39:53-64 Ja '16

Details of entrance bay and vestibule. L. M. Hendrick, jr. Arch & Bldg 48:detail sheet 4 Ap '16

Details of northwest gable and southwest entrance porch, Trinity church, Syracuse, N. Y. Arch & Bldg 48: detail sheet 2 F '16

Early American architectural details. Brickb 24:291-2; 25:13-16, 43-6, 65-8, 95-8, 123-6, 155-8, 173-6, 205-8, 265-8, 297-300 D '15-Ag, O-N '16

Haddington branch, the Free library of Philadelphia. C. M. Price. il diags plans Arch Rec 40:44-62 Jl '16

Interior details. Arch & Bldg 48:detail sheet 1 Ja '16

Three quarter inch scale detail of college club. A. McDonald. Arch & Bldg 48:detail sheet 3 Mr '16

See also Doors; Doorways; Entablature; Floors; Stairways; Windows

Study and teaching

Experiment in co-operative training in architectural design. Brickb 25:103 Ap '16

Relation of art to education. F: L. Ackerman. Am Inst Arch J 4:190-3, 234-8, 281-4 My-Jl '16

See also Architectural education

England

Old English plaster work. J. W. Overend. il Brickb 25:127-30 My '16

France

Architectural draughtsmen; Eugene Isabey and his lithographs. H: Winslow. il Am Inst Arch J 4:139-50 Ap '16

Italy

Assisi and Perugia by chance acquaintance. W. R. B. Willcox. il Am Inst Arch J 3:518-27 D '15

United States

Architecture of democracy; three recent examples from the work of Louis H. Sullivan. A. N. Rebori. il plans Arch Rec 39:436-65 My '16

Twenty-five years of American architecture. A. D. F. Hamlin. il Arch Rec 40:1-14 Jl '16

Virginia

Early architecture of the Rappahannock valley; Marmion. F. C. Baldwin. il plan Am Inst Arch J 4:87-95 Mr '16

Early architecture of the Rappahannock valley; Mount Airy. F. C. Baldwin. il plan Am Inst Arch J 4:448-54 N '16

Architecture, Colonial

Colonial architecture in Connecticut. W. S. Bessell. il diags Arch Rec 37:360-9, 445-52, 547-56; 38:672-80; 39:53-64 Ap-Je, D '15-Ja '16

Dutch colonial house on Long Island, New York. il plans Bldg Age 38:33-5 Mr '16

Early architecture of the valley of the Rappahannock. F. C. Baldwin. il diags plans Am Inst Arch J 3:113-18, 234-40, 328-36; 4: 87-95, 448-54 Mr, Je, Ag '15, Mr, N '16

Bibliography

Books on colonial architecture. R: F. Bach. bibliog Arch Rec 38:281-6, 379-82, 592-4, 690-3; 39:89-93, 186-90, 292-4, 384-9, 568-71; 40:89-92, 185-9, 279-81, 493-4, 578-81 Ag-S, N '15-Ap, Je-S, N-D '16

Architecture, Domestic

Architectural features of the garden. J: T. Fallon. il Brickb 25:119-22, 151-4 My-Je '16
 Frame house of the chalet type. C: A. Byers. il plans Bldg Age 38:19-22 Ja '16
 How cost of building may be reduced; use of better plans and specifications. A. M. Wolf. Bldg Age 38:25-6 O '16

See also Apartment houses; Apartments; Bungalows; Concrete houses; Cottages; Country houses; Doors; Doorways; Duplex houses; Farmhouses; Fireplaces; Fruit closets; Heating; House decoration; House painting; Housing problem; Kitchens; Par-
 lours; Plumbing; Stairways; Stucco

Designs and plans

Attractive house of stucco on frame built for an architect at Moline, Ill. il plans Concrete Cem 8:13, 18 Ja '16
 Brookfield, Chestnut Hill, Philadelphia; views and plans. Arch Rec 40:63-75 Ji '16
 Cement-coated country house. diags plans Bldg Age 38:42-4 F '16
 Cleverly planned Syracuse dwelling. il diags plans Bldg Age 38:19-24 Ap '16
 Competition for a one-family house. il diags Brickb 25:181-6 Ji '16
 Concrete house constructed by new form system. il diags plans Concrete Cem 8:32-3 Ja '16
 Country house architecture in the East. E. D. Litchfield. il plans Arch Rec 40:356-92 O '16
 Country house architecture in the Middle West. P: B. Wight. il plans Arch Rec 40:290-321 O '16
 Country house architecture on the Pacific coast. J: G. Howard. il plans Arch Rec 40:322-55 O '16
 Country house of frame construction. il plans Bldg Age 38:42-5 Ja '16
 Country house of H. H. Rogers. J. T. Boyd, jr. il plans Arch Rec 39:1-23 Ja '16
 Country house of Ormond G. Smith, esq., Oyster Bay, L. I. D. H. Fessenden. il plans Arch Rec 40:114-27 Ag '16
 Cravardan, the residence of John Glass, esq., Highland Park, Illinois. I. T. Frary. il plans Arch Rec 40:516-23 D '16
 Dutch colonial house on Long Island, New York. il plans Bldg Age 38:33-5 Mr '16
 Dwelling house series; views and plans. Arch & Bldg 48:pl 14a-14d, pl 17a-17f, pl 25a-25d, 92a-92d, pl 29a-29d, pl 41a-41d, d tai sheet 7, pl 45a-45d, pl 49a-49d, pl 55a-55h, pl 64a-64i F-N '16
 English housing scheme; Duchy of Cornwall estate at Kennington, London. R. R. Phillips. il plans Brickb 25:69-74 Mr '16
 Example of fireproof residence construction at Kansas City, Mo. il plans Concrete Cem 8:14-16 Ja '16
 Four-room cottage for the suburbs. il plans Bldg Age 38:42-5 Mr '16
 Frame cottage at Pensacola, Fla. il plan Bldg Age 38:27-8 Ap '16
 Frame cottage in a New York suburb. il diags plans Bldg Age 38:19-25 D '16
 Frame house at Bayside, New York. il plans Bldg Age 38:19-23 S '16
 Half-timbered veneered house. il diags plans Bldg Age 38:42-5 O '16
 House at Wheaton, Ill. il plans Bldg Age 38:19-26 Je '16
 House in a Cleveland suburb; Dutch colonial type. il diags plans Bldg Age 38:19-24 O '16
 House of Clifford V. Brokaw, esq., Glen Cove, Long Island. il plan Brickb 25:159, pl 85-90 Je '16
 House of Mrs. J. G. Thorp, Cambridge, Mass. and other views and plans. Brickb 25:pl 59-64 Ap '16
 House of Schuyler Schieffelin, esq., at Monroe, N. Y. J: T. Boyd, jr. il plans Arch Rec 40:30-43 Ji '16
 House of Thomas W. Russell, esq., Hartford, Conn.; views and plans. Brickb 25:159, pl 93-6 Je '16
 House of Townsend G. Treadway, Bristol, Conn.; views and plans. Brickb 25:pl 180-2 N '16
 House of W. J. Tully, Locust Valley, Long Island; views and plans. Brickb 25:pl 177-9 N '16

House of William H. Davidge, Weston, Conn.; views and plans. Brickb 25:pl 183-5 N '16
 Houses of C. A. Goodwin, Hartford, Conn., and Daniel England, Pittsfield, Mass.; views and plans. Brickb 25:pl 44-8 Mr '16
 How I built my ideal concrete home. W: G. Hoag. il plans Bldg Age 38:47-52 F '16
 Low cost houses for employees. J: Nolen. Am Ind 17:13-17 N '16
 Morgan Park—a beautiful steel-mill town. il plans map Iron Age 97:48-52 Ja '16
 New houses from old models. W: G. Massarene. il plans Arch Rec 40:541-8 D '16
 Portfolio of current architecture. il plans Arch Rec 39:372-83; 40:247-71, 478-92, 559-77 Ap, S, N-D '16
 Prize designs in \$3000 house contest. il plans Bldg Age 38:69-71 Ap '16
 Recent domestic architecture from the designs of John Russell Pope. H. D. Smith. il plans Brickb 25:189-204, pl 113-136 Ag '16
 Recent houses at Forest Hills Gardens, Long Island. il plans Brickb 25:139-42, 149-50 Je '16
 Santa Gertrudis ranch house, the home of Mrs. H. M. King, near Kingsville, Texas. il plan Arch Rec 40:76-83, 96 Ji '16
 Selection of domestic architecture from the work of Robert H. Wambolt and of Allan E. Boone; views and plans. Brickb 25:35-8 F '16
 Seven-room Dutch colonial house. F. T. Feller. il plans Bldg Age 38:27-30 Ja '16
 Shingled house in Needham, Mass. il diags Bldg Age 38:19-25 Ag '16
 Small country house of five rooms; a frame building with exterior of stucco on metal lath. il diags plans Bldg Age 38:42-5 My '16
 Stucco-coated frame residence to meet the requirements of a physician. il Bldg Age 38:19-25 Ji '16
 Stucco house in Rochester, N. Y. il plans Bldg Age 38:63-4 Mr '16
 Suburban house of seven rooms. il diags plans Bldg Age 38:42-4 D '16
 Three Connecticut country houses. D. H. Fessenden. il plans Arch Rec 40:402-17 N '16
 Three-family house in Pensacola, Florida. il plans Bldg Age 38:37-8 Ja '16
 Tile and stucco house in Worcester, Mass. il plans Bldg Age 38:63-5 D '16
 Two country houses at Southampton, L. I. J: T. Boyd. il plans Arch Rec 39:197-211 Mr '16
 Two-family house of hollow tile. il plans Bldg Age 38:46-9 Ji '16
 Two first floor plans. Arch Rec 39:175-7 F '16
 Two frame cottages of moderate cost. il diags plans Bldg Age 38:71-4 Je '16
 Two houses of poured concrete erected at Middleburg, Va. il plans Concrete Cem 8:22-3 Ja '16
 Walter Cope memorial prize competition. il plans Am Inst Arch J 4:337-9 Ag '16
 Western type of two-family house. il plans Bldg Age 38:19-26 F '16

England

English housing problem; Duchy of Cornwall estate at Kennington, London. R. R. Phillips. il plans Brickb 25:69-74 Mr '16

France

Château of Les Grotteaux. F. Kimball. il plan Arch Rec 40:445-9 N '16

New York state

Along the Seneca turnpike. E. Bonta. il Arch Rec 40:505-15 D '16

United States

Books on colonial architecture; dwellings. R: F. Bach. Arch Rec 39:186-90, 292-4, 384-9, 568-74; 40:89-92, 185-9 F-Ap, Je-Ag '16
 Country house architecture in the East. E. D. Litchfield. il plans Arch Rec 40:356-92 O '16
 Country house architecture in the Middle West. P: B. Wight. il plans Arch Rec 40:290-321 O '16
 Country house architecture on the Pacific coast. J: G. Howard. il plans Arch Rec 40:322-55 O '16
 Country house of H. H. Rogers. J. T. Boyd, jr. il plans Arch Rec 39:1-23 Ja '16

Architecture, Domestic—United States—Cont.

Early American architectural details. Brickb 24:291-2; 25:13-16, 43-6, 65-8, 95-8, 123-6, 155-8, 173-6, 205-8, 265-8, 297-300 D '15-Ag, O-N '16

Early architecture of the Rappahannock valley; Marmion. F. C. Baldwin. il plan Am Inst Arch J 4:87-95 Mr '16

Early architecture of the Rappahannock valley; Mount Airy. F. C. Baldwin. il plan Am Inst Arch J 4:448-54 N '16

Examples of the work of Mellor & Meigs. H. D. Eberlein. il plans Arch Rec 39:212-46 Mr '16

House of Schuyler Schieffelin, esq., at Monroe, N. Y. J. T. Boyd, jr. il plans Arch Rec 40:30-43 Jl '16

Houses in Mount Vernon, N. Y.; views and plans. Arch & Bldg 48:pl 3a-3c Ja '16

Interesting residence on Watchung Mt. has features of concrete. il plans Concrete Cem 8:9-11 Ja '16

Melody farm; the country home of J. Ogden Armour, Esq., Lake Forest, Ill. P. B. Wight. il plan Arch Rec 39:97-121 F '16

Pastorius park, Philadelphia and its residential development. H. D. Eberlein. il plans Arch Rec 39:24-39 Ja '16

Three Connecticut country houses. D. H. Fessenden. il plans Arch Rec 40:402-17 N '16

Architecture, Gothic

Definition of Gothic. C: H. Moore. Arch Rec 40:274-8 S '16

Gothic architecture and its critics. A. D. F. Hamlin. il diags Arch Rec 39:338-54, 419-35; 40:97-113 Ap-May, Ag '16

Jackson's Gothic architecture; review by P. B. Wight. Arch Rec 40:282-4 S '16

Poetry of Gothic. W: L. Mowll. Am Inst Arch J 4:354 Ag '16

Architecture, Medieval

Architecture of mediaeval Chester. D. Lyman. il Arch Rec 40:285-7 S '16

Architecture, Military. See Fortification**Architecture, Naval. See Naval architecture****Architecture, Roman**

Roman stucco work. W: J. H. Hough. diag Am Inst Arch J 4:73-6 F '16

See also Roman antiquities

Architecture, Romanesque

Romanesque architecture. Bldg Age 38:25-6 Jl '16

Architecture, Rural. See Barns and stables; Country houses; Farmhouses**Arctic exploration**

Aeroplane in Arctic exploration. B. M. McConnell. il Sci Am 115:295 S 30 '16

Return of the scientific section of the Stefansson expedition. map Sci Am 115:194+ Ag 26 '16

See also Antarctic exploration

Area measurement

Acre conversion table. D. Gerber. Eng N 75:232 F 3 '16

Handy road chart. N. G. Near. Eng & Contr 46:21 Jl 5 '16

Reducing decimals of an acre to square feet; table. C. H. Eiffert. Eng N 74:702 O 7 '15; Correction. 74:1280 D 30 '15

Time to abolish yardage. O. W. Childs. Eng Rec 74:540-1 O 28 '16

Argentina

Argentine trademark law. R. W. Huntington. Automobile 35:629, 638, 646, 680 O 12-19 '16

Galvan port, Bahia Blanca, Argentine. C: A. Trery. Engineer 120:636 D 31 '15

Commerce

Argentina as yarn buyer. Textile World 51:139+ D 11 '15

Lumber markets of the east coast of South America. R. E. Simmons. il U S Bur For & Dom Com 112:9-64 '16

Markets for agricultural implements and machinery in Argentina. F. H. von Motz. U S Bur For & Dom Com 125:1-86 '16

Markets for American hardware in Argentina, Uruguay and Paraguay. A. Hale. U S Bur For & Dom Com misc ser 43:1-64 '16

Markets for machinery and machine tools in Argentina. J. A. Massel. 15 il U S Bur For & Dom Com 116:1-64 '16; Abstract. Iron Tr R 59:119-20 Jl 20 '16

Commercial policy

Report on trade and tariffs. U S Fed Tr Comm p 106-46 '16

Industries and resources

South America. D: Beecroft. il map Automobile 35:170-4 Ag 3 '16

Argon

Hot cathode argon gas filled rectifier. G. S. Meikle. il diags Gen Elec R 19:297-304 Ap '16

Arid soils

Nitrogen problem in arid soils. C: B. Lipman. Sci Am S 81:23 Ja 8 '16

Arithmetic

See also Bookkeeping; Calculating machines; Decimal system; Mensuration; Metric system; Multiplication; Numerals

Study and teaching

Simplifying the teaching of mathematics. il Sci Am 114:430 Ap 22 '16

Arizona

See also Geology—Arizona

Industries and resources

Institute meeting in Arizona. P. E. Barbour and R. D. Hall. il Eng & Min J 102:695-702 O 14 '16

Metallurgical plants of Arizona; a brief summary of the extent of metallurgical practice in Arizona, and the itinerary of the tour of the American institute of mining engineers. map Met & Chem Eng 15:167-71 Ag 15 '16

Oatman district, Arizona. L. A. Palmer. il Eng & Min J 101:895-900 My 20 '16

Tungsten in Arizona. W: P. De Wolf. Eng & Min J 101:680 Ap 15 '16

See also Copper mines and mining—Arizona; Mines and mineral resources—Arizona

Maps

Mining camps of Arizona, scene of this year's annual meeting of the A. I. M. E.; map. Eng & Min J 102:501 S 16 '16

Arizona copper co.

Advent of flotation in the Clifton-Morenci district, Arizona. D: Cole. il diags Am Inst Min E Bul 117:1611-26 S '16

Smelting at the Arizona copper co.'s works. F. N. Flynn. il Am Inst Min E Bul 117:1575-92 S '16; Same cond. Eng & Min J 102:638, 703-6 O 7-14 '16

Arm, Artificial. See Artificial limbs**Armadillos**

Remarkable armadillos. Dr. Bergner. il Sci Am S 81:157 Mr 4 '16

Armatures

Armature copper losses in rotary converters and double-current generators. L. H. A. Carr. Inst E E J 54:49-52 D 1 '15

Armature-winding rack made of pipe and pipe fittings. W. D. Wilson. diag Elec R & W Elec'n 68:334 F 19 '16

Burning of armature coils. R. L. Hervey. diags Elec R & W Elec'n 69:332 Ag 19 '16

Direct-current armature-winding troubles. T. Schutter. diags Elec R & W Elec'n 68:859-60 My 13 '16

Direct-current armature windings. J: A. Randolph. diags Power 44:375-7 S 12 '16

Experimental data concerning the safe operating temperature for mica armature-coil insulation. F. D. Newbury. diags Am Inst E E Pro 34:2555-72 O '15; Abstract. Elec W 66:1205-6 N 27 '15; Discussion. Am Inst E E Pro 35:272-87 F '16

Home-made armature banding tensioner. M. F. Flatley. il Elec Ry J 47:961 My 20 '16

Hot spots in synchronous converter armatures. A. E. Hanson and C. A. Corney. diags Elec W 68:807-8 O 21 '16

Iron losses in direct-current machines. B. G. Lamme. diags Am Inst E E Pro 35:345-70 Mr '16; Discussion. 35:1100-12 Jl '16

Armatures—Continued

- Locating and removing grounds in armatures. J. H. Daniel. *diag Elec R & W Elec'n* 68:294 F 12 '16
- Peerless armature machine. *il Coal Age* 10:640-1 O 14 '16
- Repair of a motor armature spider. W. A. Ernst. *diags Elec Ry J* 48:1026-7 N 11 '16
- Replacing band wires. V. W. Miller. *il Power* 44:70 J 11 '16; Same. *Coal Age* 10:222 Ag 5 '16
- Use of armature bands. G. Fox. *Power* 43:224 F 15 '16
- See also* Commutators; Dynamos; Electromagnets

Armies

- Industrial army. C. F. Talman. *Sci Am* 115: 80-1 J 12 '16
- See also* Military art and science; Military hygiene; Recruiting and enlistment

Commissariat

- Feeding the prisoners of war. *Sci Am* 114:639 Je 17 '16
- Keeping an army supplied; how fighting men of Germany are victualled and munitioned. A. Gradenwitz. *il Sci Am* 114:152 F 5 '16
- Railroad supply cities feeding the firing line. W. S. Hiatt. *il diag Ry Age* 60:287-9 F 18 '16; Same. *Sci Am S* 82:68-9 J 29 '16

Medical service

See Medicine, Military

Armor plate

- Armor-plate. J Fr Inst 182:409-10 S '16
- Armor plate bill; industrial preparedness leaders urge its defeat. *Iron Tr R* 58:1101-4, 1162-3, 1205-6 My 18-Je 3 '16
- Armor plate cutting with the oxy-hydrogen flame. A. F. Mitchell. *il Eng Soc W Pa* 31: 711-18 N '15
- Government armor plant inquiry. *Iron Age* 97: 255, 262-3 Ja 27 '16
- Government-made armor plate. *Am Ind* 16:9-11 Ap '16
- History of development and modern methods of manufacture. *Sci Am S* 82:270-1 O 21 '16
- How modern armor plate is made. E. L. Shaner. *il Iron Tr R* 58:1037-42 My 11 '16

Armored automobiles. *See* Automobiles, Military

Armored cars. *See* Cars, Armored

Armored vessels. *See* Warships

Armories

- Arch-truss roof for drill hall, Second regiment armory, Chicago. *il diags Eng N* 75:152-3 Ja 27 '16
- Building foundations 150 feet under Scranton armory. *il plan Eng N* 76:681-4 O 12 '16
- Concrete tower erected within armory drill hall. *il Eng Rec* 73:293 F 26 '16
- Design and construction features of the Second infantry armory, Chicago, Ill. *Eng & Contr* 45:431 My 10 '16
- Electrical installation in Boston armory. *il Elec R & W Elec'n* 68:290-1 F 12 '16
- Features of armory construction; Second infantry armory in Chicago. *il Bldg Age* 38: 73-4 My '16
- Present practise in the lighting of armories and gymnasiums with tungsten filament lamps; with discussion. A. L. Powell and A. B. Oday. *il Illum Eng Soc* 10:746-65 no 8 '15; Table. *Illum Eng Soc* 10:pt 1a app 1 no 9 '15

See also Arsenals

Armour, Jonathan Ogden, 1863-

- Melody farm; the country home of J. Ogden Armour, Esq., Lake Forest, Ill. F. B. Wight. *il plan Arch Rec* 39:97-121 F '16

Arms and armor

- Medieval revival in warfare. *Eng Rec* 73:503 Ap 15 '16
- Pistol vs. bayonet. G. Hall. *Sci Am* 114:301 Mr 18 '16
- See also* Artillery; Bayonets; Firearms; Helmets; Pistols; Rifles; Shields

Army cloths

- Army knit goods styles; specifications adopted by quartermaster on wool underwear. *Textile World* 51:3925-+ S 9 '16

English army cloths. *Textile World* 51:911-+ Ja 29 '16

Using long wools for short in army goods. *il Textile World* 51:3545-+ Ag 12 '16

Arnold, Constable & company, New York

Store. *il plan Arch & Bldg* 47:408-11 N '15

Aromatic hydrocarbons. *See* Hydrocarbons, Aromatic

Aromatic sulphuric acid. *See* Sulphuric acid, Aromatic

Arrowrock dam

- Highest dam in the world. *Munic Eng* 50:55 F '16
- How horsepower is burned up at Arrowrock dam. J. M. Gaylord. *Eng Rec* 74:409-10 S 30 '16

Arsenals

- Scientific management in arsenals. W. Crozier. *Iron Tr R* 58:649-51 Mr 23 '16
- See also* Armories

Arsenic

- Arsenic content of filter alum; with discussion. E. Bartow and A. N. Bennett. *Am Water Works Assn J* 2:585-95 D '15
- Reduction of As^v to Asⁱⁱⁱ by cuprous chloride and the determination of arsenic by distillation and the arsenic trichloride. R. C. Roark and C. C. McDonnell. *J Ind & Eng Chem* 8:327-31 Ap '16
- Study of the silver arsenate test for arsenic. L. J. Curtman and F. Daschavsky. *Am Chem Soc J* 38:1280-2 J 1 '16

Arsenic acid

- Action of hydrogen sulfide on arsenic acid. W. Foster. *Am Chem Soc J* 38:52-7 Ja '16

Art

- Relation of art to education. F. L. Ackerman. *Am Inst Arch J* 4:150-3 My '16
- See also* Architecture; Bronzes; Frescoes; House decoration; Mosaics; Municipal art; Paintings; Photography; Sculpture

Study and teaching

- Relation of art to life. C. H. Whitaker. *Am Inst Arch J* 4:11-17 Ja '16

Art, Municipal. *See* Municipal art

Art castings. *See* Castings, Art

Art commissions

- Art commissions and the future of American cities. A. W. Crawford. *il plans Am Inst Arch J* 3:528-34 D '15

Art galleries

- Building for the Freer collections, Washington, D. C.; views and plans. *Am Inst Arch J* 4: 255-6 Je '16
- Cleveland museum of art. *il plans Arch & Bldg* 48:140-4 Ag '16
- Cleveland museum of art. I. T. Frary. *il plans Arch Rec* 40:195-211 S '16
- Lighting a small art gallery with gas-filled lamps. A. L. Abbott. *il diag Elec W* 67:710-11 Mr 25 '16
- Lighting Cleveland museum of art with daylight lamps. *il plan Elec W* 68:859-61 O 28 '16
- Lighting the Cleveland museum of art. *il diags plan Elec R & W Elec'n* 69:842-6, 885-7 N 11-18 '16

Art industry and trade

- Tradesmen and artists. *Am Inst Arch J* 4: 405-8 O '16

Artesian wells

- Artesian water supply development at Ogden, Utah. F. J. Hendershot. *Eng & Contr* 44: 465-6 D 15 '15
- Artesian wells and methods of pumping them; with discussion. J. D. Kilpatrick. *Am Water Works Assn J* 2:639-56 D '15
- Deep wells that feel the sea. *Metal Work* 86: 315 S 8 '16
- Economical water-supply from flowing wells at Ogden, Utah. *il plan Eng N* 75:1212 Je 29 '16
- Pumping from deep wells into water mains at Memphis. *diags Eng N* 75:1038-40 Je 1 '16
- Water supply of Waterloo, Iowa. J. P. Berry. *Munic Eng* 50:8 Ja '16

Artificial ice. *See* Ice—Manufacture

Artificial leather. See Leather, Artificial

Artificial limbs

Artificial limbs and prothetic apparatus for the crippled. *il Sci Am S 81:328-9 My 20 '16*
Artificial limbs for maimed soldiers. *il Engineer 122:207-9 S 8 '16*

Care of the wounded in France; methods and instruments for aiding men who have lost hands or arms. J. Amar. *il diag Sci Am S 82:348-50 N 25 '16*

Magnetic hand for war cripples. *il Elec W 67:340 F 5 '16; Eng M 50:939 Mr '16; Sci Am 114:348 Ap 1 '16*

Manufacturing American artificial limbs in England. G. R. Thomas. *il Sci Am 114:513-14 My 13 '16*

Metal socket which acts as a hand in driving a car. *Sci Am 115:46 Jl 8 '16*

New devices to aid the wounded; hands and limbs that enable expert operations to be performed. J. Boyer. *il Sci Am S 82:116 Ag 19 '16*

New types of artificial arms for victims of the war. J. Boyer. *il Sci Am 115:207 S 2 '16*

Shoulder-operated artificial arms and hands invented by W. T. Carnes. *il Sci Am 114:77 Ja 15 '16*

Siemens-Schuckert artificial arm. Kesten. *il Am Soc M E J 38:99-100 Ja '16*

War cripples in Austria and Germany. Engineer 121:64-5 Ja 21 '16

Willows; their growth, use, and importance. G. N. Lamb. *U S Agric Bul 316:32-4 '15*

Artificial pearls. See Pearls, Artificial

Artificial rain. See Rain, Artificial

Artificial silk. See Silk, Artificial

Artificial straw. See Straw, Artificial

Artillery

Field artillery of the United States army. *il Sci Am 115:120-1+ Ag 5 '16*

Field-artillery service for civilian engineers. T. D. Gregg. *diags Eng N 76:564-5 S 21 '16*

Field-artillery service should attract engineers. E. McCullough. *Eng N 76:353-6 Ag 24 '16*

Gun emplacements and concealment. *il Sci Am S 82:36 Jl 15 '16*

Land cruisers in the battle of the Somme. *il Sci Am 115:391 O 28 '16*

Masking of artillery in the field. M. Wells. *il Sci Am 114:198-9 F 19 '16*

Modern artillery and future development. L. Cresap. *il diags Iron Age 97:39-47 Ja 6 '16*

Modern artillery and individual initiative. *Sci Am 115:256 S 16 '16*

Modern heavy high elevation artillery. *il Sci Am S 80:376 D 11 '15*

Prototypes of modern artillery. *il Sci Am 115:390-1 O 28 '16*

See also Guns (ordnance); Mountain guns; Naval guns

Arts and crafts

See also Goldsmithing; Ironwork; Mosaics; Pottery; Weaving

Asbestos

Asbestos. C. K. Dillingham. *Textile World 51:2557-8 My 27 '16*

Asbestos sheathing protects steel overhead bridge. *diag Eng Rec 74:656 N 25 '16*

Genesis of asbestos and asbestiform minerals. S. Taber. *diags Am Inst Min E Bul 119:1973-98 N '16*

Gradual ascendancy of the United States as an asbestos producer. *Sci Am 115:155 Ag 12 '16*

Asbestos shingles. See Shingles, Asbestos

Ash

Ashes; their characteristics and management. W. D. Sterrett. *il maps U S Agric Bul 299:1-88 '15*

Commercial uses of white ash. *il Am For 21:1083-9 D '15*

White ash. S. B. Detwiler. *il map Am For 21:1081-3 D '15*

Ash collection

Ash collection in Milwaukee. *Munic J 40:77-8 Ja 20 '16*

Ash handling

Ash-conveyor system. *il diags Coal Age 9:588-9 Ap 1 '16*

Handling coal and ashes at Grundy plant, Bristol, Pa. H. J. Edsall. *il plan Power 44:480-3 O 3 '16*

Plant crew reduces ash-handling costs. A. A. Norrman. *il diag Power 43:842-3 Je 13 '16*

Power plant at Mooseheart, Ill. T. Wilson. *il diags Power 43:426-9 Mr 28 '16*

Shoveling ashes with a steam jet. B. L. Calkins. *il Factory 17:32-5 Jl '16*

Vacuum ash-removal system. T. W. Reynolds. *diags Elec W 66:1371-2 D 18 '15*

Water-filled asphalt on the Baltimore & Ohio R. R. *diags Eng N 75:1085 Je 8 '16*

Ashes. See Ash handling; Coal ashes; Wood ashes

Aspergillus oryzae

Experiments upon the amylase of aspergillus oryzae. H. C. Sherman and A. P. Tanberg. *Am Chem Soc J 38:1638-45 Ag '16*

Asphalt

Fibred asphalt for road surfacing. *il Munic Eng 51:67-8 Ag '16*

Increasing use of asphalt. *Eng N 76:307 Ag 17 '16*

Measuring viscosity of very viscous substances, such as heavy oils, petroleum, asphalts, resins, etc. *Met & Chem Eng 15:541 N 1 '16*

Origin of petroleum and asphalt. C. Richardson. *J Ind & Eng Chem 8:4 Ja '16*

See also Asphalt plants; Bituminous materials; Pavements, Asphalt

Testing

Bituminous materials tests for sheet asphalt. F. P. Smith. *Eng N 76:205-9 Ag 3 '16*

Asphalt pavements. See Pavements, Asphalt

Asphalt plants

Asphalt paving with a road asphalt plant. *il Munic Eng 51:162-3 O '16*

Concrete and asphalt mixing plant saves its cost in one year. G. H. Binkley. *il diags Elec Ry J 47:728-31 Ap 15 '16*

Cummers portable asphalt plant. *il Munic J 41:526-7 O 26 '16*

750 yard asphalt plant turns out 1,200 yards of asphaltic concrete per nine-hour day. *il plan Munic Eng 50:79-81 F '16*

Asphalt plants, Municipal

Asphalt pavement costs with municipal plant. J. W. Cunningham. *Eng N 76:375 Ag 24 '16*

Bronx borough makes its own asphalt repairs—effects big saving. *il map Eng Rec 73:579 Ap 29 '16*

City makes money by purchasing plant and laying its own asphalt paving. C. E. Ridley. *Eng Rec 73:767-9 Je 10 '16*

Municipal asphalt plant of Manhattan boro, New York city. *il Munic Eng 50:194-5 My '16*

Municipal asphalt repair plant of Washington, D. C. *Munic Eng 50:30 Ja '16*

Municipal asphalt repairs in Scranton. J. G. Hayes. *il Munic J 40:136-40 F 3 '16*

Municipal day labor in Flint, Mich. *Munic J 41:258 Ag 31 '16*

Operating costs at Los Angeles asphalt plant. *Eng Rec 74:523 O 28 '16*

Operation of the municipal asphalt plant of the borough of Manhattan, New York city. *Good Roads n s 10:298-9 D 4 '15*

Asphyxia

Asphyxia from defective ship-board ventilation. *Sci Am S 82:206 S 23 '16*

Asphyxiating gases. See Gases, Asphyxiating

Assaying

Assaying of copper bullion. G. W. Partridge. *Eng & Min J 102:551 S 23 '16*

Cupellation losses in assaying. H. T. Mann and C. Y. Clayton. *Met & Chem Eng 15:374-5 O 1 '16*

Determination of copper in low-grade ores. F. O. Hawley. *Eng & Min J 102:307-8 Ag 12 '16*

Distribution of silver between metallic lead and litharge-containing slags. B. Dudley, Jr. *diags Met & Chem Eng 14:636-41, 695-701 Je 1-15 '16*

Drilling and analysis of copper ores. A. J. Sale. *Eng & Min J 102:87-90 Jl 8 '16*

Effect of borax in matte fusion. G. E. Johnson. *Eng & Min J 101:648-50 Ap 8 '16*

Assaying—Continued

- Fineness of ore crushing for assaying. E. J. Hall. Eng & Min J 100:1016; 101:445 D 18 '15, Mr 4 '16
- Fineness of ore crushing for assaying. F. P. Dewey. Eng & Min J 101:187 Ja 22 '16
- Laboratory efficiency. E. M. Johnson. diags Eng & Min J 102:945 N 25 '16
- Platinum versus gold dishes. H. D. Greenwood. Eng & Min J 101:780-1 Ap 29 '16
- Pouring assay melts upon a flat plate. G. H. Clevenger. il diag Eng & Min J 102:141-2 JI 15 '16
- Pulp and metallic assays. J. T. King. Eng & Min J 102:827-8 N 4 '16
- Simple and rapid assay of lead. G. Torosian. J Ind & Eng Chem 8:331 Ap '16
- Tungsten in the assay for lead. H. Lavers. Eng & Min J 102:513 S 16 '16
- Use of slide rule in calculating base-bullion assays. Met & Chem Eng 14:561-2 My 15 '16
- See also* Gold assaying

Assembling methods

- Assembling methods of the Jones & Lamson machine co. E. K. Hammond. il diags Mach 22:470-2 F '16
- Assembling motor truck engines. il Iron Age 97:952 Ap 20 '16
- Building all-steel box cars. il Iron Tr R 58:287-90 F 3 '16
- Conveyor system aids big production. L. V. Spencer. il diag Automobile 35:100-4 JI 20 '16
- Dodge motor assembly progressive. il Automobile 34:372 F 24 '16
- Military rifle. D. T. Hamilton and others. il Mach 22:854-7 Je '16
- Modern methods of car building. R. V. Sawhill. il plan Iron Tr R 58:281-6 F 3 '16

Assessment

- Assessing costs of extensions in a municipally owned plant. D. A. Reed. Am Water Works Assn J 2:612-16 D '15; Same cond. Eng & Contr 43:447-8 My 19 '15; Discussion. Am Water Works Assn J 2:617-24 D '15
- Assessing water main extensions. Munic J 40:365 Mr 16 '16
- Assessment method in California. Munic J 40:552-3 Ap 20 '16
- Method of making drainage and improvement assessments. P. A. Cupper. Eng N 76:975-6 N 23 '16
- Prorating paving cost among property owners. H. M. Talbott. diags Eng N 76:14-15 JI 6 '16

Assisi

- Assisi and Perugia by chance acquaintance. W. R. B. Willcox. il Am Inst Arch J 3:518-27 D '15

Associated engineering societies of St. Louis

- Solving the problem of local engineering associations. Eng N 75:5 Ja 6 '16

Associated manufacturers of electrical supplies

- Co-operation among manufacturers. Elec W 68:544 S 9 '16
- 1st annual meeting. New York city. Mar. 16. Elec R & W Elec'n 68:537-9 Mr 25 '16
- Power of co-operation among manufacturers. R. K. Sheppard. Elec W 68:992-4 N 18 '16

Associated press

- Supplying the world with news. M. E. Stone. J Fr Inst 181:445-57 Ap '16

Association and associations

See also Engineering societies

Association of American railway accounting officers

- 28th annual meeting. Detroit, Mich., June 28-30. Ry Age 61:5-14 JI 7 '16

Association of Edison illuminating companies

- Abstract of report of lamp committee. Elec W 68:900-1 N 4 '16
- 37th annual convention. Hot Springs, Va. Elec W 68:509-10 S 9 '16

Association of engineering societies

- Association of engineering societies to be disbanded; final report of the chairman. J. W. Woermann. Assn Eng Soc J 55:195-7 D '15

Association of engineers, American. See American association of engineers**Association of iron and steel electrical engineers**

- 10th annual convention. Chicago. Sept. 18-22. Elec R & W Elec'n 69:540-1, 579-80 S 23-30 '16; Elec W 68:604-5, 657 S 23-30 '16; Iron Tr R 59:642-4 S 28 '16

Association of railroad superintendents

- Annual meeting. Memphis, Tenn., Aug. 16-18. Ry Age 61:261-2 S 1 '16

Association of railway claim agents

- 27th annual convention. Atlantic City, N. J., May 17-19. Ry Age 60:1139-42 My 26 '16

Association of railway electrical engineers

- 9th annual convention. Chicago. Oct. 31-Nov. 3. Ry Age 61:841-5 N 10 '16; Ry R 59:631-4 N 4 '16; Elec Ry J 48:975-6 N 4 '16; Elec W 68:946 N 11 '16

Association of railway telegraph superintendents

- 35th annual convention. St. Paul, Minn., June 20-23. Ry Age 60:1577-9 Je 30 '16

Association of transportation and car accounting officers

- Summer meeting. Boston. June 27-28. Ry Age 61:29-33 JI 7 '16

- Winter meeting. St. Louis. Dec. 14-15, 1915. Ry Age 60:51-2 Ja 14 '16

Associations, Employers'. See Employers' associations**Associations, Engineering. See Engineering societies****Associations, Trade. See Trade associations****Astoria, Oregon****Wharves**

- Municipal docks at Astoria. J. P. Newell. il diags plan Eng N 76:697-700 O 12 '16

Astoria tunnel

- Astoria tunnel under the East river for gas distribution in New York city. J. V. Davies. il map Am Gas Light J 103:225-30, 244-7+ O 11-18 '15; Excerpts (Grouting). Eng & Contr 44:448-9 D 8 '15

Astronomical instruments

- Simple astronomical instruments for the teacher. F. G. Taylor. Sci Am S 82:249 O 14 '16

See also Telescopes

Astronomical observatories

- Mountain-top foundations support huge telescope. il Eng Rec 73:802 Je 17 '16

Astronomical photography

- Monochromatic photography of Jupiter and Saturn. R. W. Wood. il Sci Am S 82:148-9 S 2 '16

Astronomy

- Astronomy for 1915. P. Puiseux. Sci Am S 82:242-3 O 14 '16

- Retrospect of the year 1915; astronomy. Sci Am 114:7 Ja 1 '16

See also Almanacs; Astronomical observatories; Astronomical photography; Calendar; Comets; Cosmogony; Telescopes; Tides

Study and teaching

- Rod models explain astronomical problems. F. S. Foote, jr. il Eng Rec 73:457 Ap 1 '16

Astronomy, Nautical. See Nautical astronomy**Atchison, Topeka and Santa Fe railroad**

- How an industry trains its men. C. O. Price. il diags Eng M 52:23-32 O '16

- Santa Fe apprentice conference. Topeka, May 25-27. Ry Mech Eng 90:363-6, 403-5, 415-17 JI-Ag '16

- Training of young men for promotion; the Santa Fe methods; with discussion. F. W. Thomas. Ry Age 61:760-3 O 27 '16; Same. Ry Mech Eng 90:597-600 N '16

- 21st annual report. map Ry Age 61:536-7, 577-80 S 29 '16

Athens, Greece

- Replanning Athens—capital of Greece. il Am Inst Arch J 4:339-40 Ag '16

Atlanta, Georgia**Railroads**

- New railway terminals planned for Atlanta. il Eng N 76:715 O 12 '16

Streets

- To relieve traffic congestion in Atlanta. map Munic J 40:46 Ja 13 '16

Atlanta, Birmingham & Atlantic railroad
1st annual report. map Ry Age 61:933 N 24
16
Valuation report. Ry Age 61:196 Ag 4 '16

Atlantic City, New Jersey
Attractions at Atlantic City. il Dom Eng 75:
336-7 Je 10 '16

Hotels

Concrete plant and methods used in constructing Hotel Traymore. plan Eng & Contr 45:
14-15 Ja 5 '16

Sanitary affairs

Garbage disposal in Atlantic City. Munic J
39:917 D 16 '15

Atlantic Coast Line railroad

Abstract of annual report for fiscal year ended June 30, 1915. map Ry Age 60:30 Ja 21
'16

Atmosphere

Aerography; the science of the structure of the atmosphere. A. McAdie. il Sci Am S 82:
20-1 Jl 8 '16

Distribution of gaseous matter. T. W. Schaeffer. Sci Am S 82:322-3 N 18 '16

Transparency of the atmosphere in Central Australia. G. F. Dodwell. Sci Am S 81:311
My 13 '16

See also Air; Halos (meteorology)

Atmospheric electricity

New explanation of sound phenomena. B. F. Miessner. il diag Sci Am S 82:212-14 S 30
'16

See also Auroras

Atmospheric pressure

Effect of atmospheric pressure on the candle-flame of various flames; with discussion. E. B. Rosa, E. C. Crittenden and A. H. Taylor. il diag Illum Eng Soc 10:343-67 no 9 '15

Effect of barometric pressure on temperature rise of self-cooled stationary induction apparatus. V. M. Montsinger. il diag Am Inst E E Pro 35:451-78 Ap '16; Discussion. 35:1494-1500 O '16

Power-plant losses at high altitudes. A. V. Clarke. Power 43:515-16 Ap 11 '16

Power-plant losses at high altitudes. C. W. Smith. Power 43:743 My 23 '16

Atmospheric temperature

Hottest region in the world. Sci Am 114:143
F 5 '16

Temperature inversions in relation to frost; methods for anticipating critical periods and protecting crops. A. McAdie. Sci Am S 81:
140-2 F 26 '16

Atomic theory

Essential attributes of the elements. T. W. Richards. J Fr Inst 182:78-86 Jl '16; Same. Met & Chem Eng 15:62-4 Jl 15 '16; Same. Sci Am S 82:134-5 Ag 26 '16

Periodic system and the properties of the elements. W. D. Harkins and R. E. Hall. diag Am Chem Soc J 38:169-221 F '16

See also Atoms

Atomic weights

Annual report of the international committee on atomic weights, 1917. Am Chem Soc J 38:
2219-21 N '16

Position of the abundant elements in the periodic system. J. Waddell. Sci Am S 82:
323 N 18 '16

Purification and atomic weight of yttrium. B. S. Hopkins and C. W. Balke. Am Chem Soc J 38:2332-47 N '16

Revision of the atomic weight of cadmium; the electrolytic determination of cadmium in cadmium bromide. G. P. Baxter, M. R. Grose and M. L. Hartmann. Am Chem Soc J 38:857-67 Ap '16

Revision of the atomic weight of neodymium. G. P. Baxter and others. Am Chem Soc J
38:302-10 F '16

Revision of the atomic weight of zinc; the electrolytic determination of zinc in zinc bromide. G. P. Baxter and M. R. Grose. Am Chem Soc J 38:868-73 Ap '16

23d annual report of committee on atomic weights; determinations publishing during 1915. G. P. Baxter. Am Chem Soc J 38:489-
96 Mr '16

See also Periodic law

Atoms

Atom and the molecule. G. N. Lewis. diag
Am Chem Soc J 38:762-85 Ap '16

Mysteries of matter. J. C. Dean. Sci Am S
81:114-15 F 19 '16

Radiation from atoms and electrons. J. J. Thomson. Sci Am S 81:290-1, 306-7, 322-3,
338-9, 344-5, 370-1 My 6-Je 10 '16

Radiations from exploding atoms. E. Rutherford. il diag Sci Am S 82:52-3 Jl 22 '16

Structure of the atom. K. Fajans. Sci Am S
81:82-3, 102-3 F 5-12 '16

See also Atomic theory; Atomic weights; Chemistry; Electrons; Molecules; Stereochemistry

Auditing

County audits. A. L. Rawlings. J Account 22:
114-21 Ag '16

Limitations. H. Benington. J Account 21:
333-43 My '16

Limited audit. J. R. Ruckstell. J Account 22:
190-5 S '16

Working papers. F. G. Colley. J Account 22:
43-9 Jl '16

See also Accounting

Auditoriums

Correction of echoes and reverberation in the auditorium at the University of Illinois. F. R. Watson and J. M. White. bibliog il diag plans Ill U Eng Exp Sta Bul 87:1-20
'16

Oakland auditorium, Oakland, Cal.; views and plans. Brickb 25:273, pl 165-9 O '16

Schemes for heating small assembly halls. diag Metal Work 85:706-8 My 26 '16

Taking care of eccentric load from balcony brackets. diag Eng N 76:763 O 19 '16

Audubon, John James

Man who loved the birds. S; B. Detwiler. il
Am For 22:214-17 Ap '16

Auroras

Auroras of Iceland. F. B. Arngrimsson. Sci
Am 114:401 Ap 15 '16

Austin, Texas

Public works

Austin dam section criticized. Eng N 76:217
Ag 3 '16

Austin dam; waterproofing the rock foundation. F. S. Taylor. il Munic Eng 51:133-6 O
'16

More trouble at Austin dam. il Eng N 75:
636-7 Ap 6 '16

Australasia

Commerce

Australasian trade with the United States. H. M. Davis. Iron Age 98:444-6 Ag 31 '16

Australia

Transparency of the atmosphere in Central Australia. G. F. Dodwell. Sci Am S 81:311
My 13 '16

See also Geology—Australia

Commerce

Australian markets for American hardware. W; C. Downs. U S Bur For & Dom Com
misc ser 42:1-105 '16

Exporting to Australia. P. B. Kennedy. U S
Bur For & Dom Com misc ser 45:1-29 '16

Industries and resources

Smelting and selling Australia's base metals. Mahon. Eng & Min J 101:1120-1 Je 24 '16

See also Automobile industry and trade—Australia; Mines and Mineral resources—Australia

Railroads

See Railroads—Australia

Austria

Industries and resources

Austrian steel industry in war time. Engineer
121:335-6 Ap 21 '16

Auto-buses. *See* Motor buses

Autocars. *See* Automobiles

Autogenous cutting. *See* Metal cutting

Autogenous welding. *See* Welding

Automatic machinery. *See* Machinery, Automatic

Automatic stop. *See* Railroads—Automatic stop

- Automobile accessory jobbers, National association of.** See National association of automobile accessory jobbers
- Automobile accidents**
- Accidents due to automobiles. Munic J 40:44 Ja 13 '16
- Accidents from automobiles; statistics for the years 1913 and 1907. F: Rex. Elec Ry J 47:36 Ja 1 '16
- Build roads like railways. J. F. Le Baron. Automobile 34:1172 Je 29 '16
- Electrified chamois funnels. Automobile 34:421 Mr 2 '16
- Gasoline, chamois and sparks. A. W. Ewell. diag Horseless Age 37:433+ Je 1 '16
- Gasoline plus chamois gives electricity. Automobile 33:1098 D 16 '15
- How pouring gas creates electricity. Automobile 34:385 F 24 '16
- Reducing a gasoline fire hazard. Elec Ry J 47:84 Ja 8 '16
- Automobile batteries.** See Storage batteries
- Automobile brakes.** See Brakes, Automobile
- Automobile driving**
- Blind spot; a peculiarity of the eye that is a source of danger. E. B. Dayton. diags Sci Am S 81:286-7 Ap 29 '16
- Blind turn; its dangers and various methods of solution. C. F. Barrett. il diag Sci Am 114:24 Ja 1 '16
- French army school trains drivers. W. F. Bradley. il Automobile 35:226-7+ Ag 10 '16
- Saving the car by careful driving. H. S. Whiting. Sci Am 114:18 Ja 1 '16
- Automobile engineering**
- Chart to find the critical speeds of solid and hollow shafts. Horseless Age 36:420 N 1 '15
- Engineering charts. Horseless Age 36:496, 539; 37:119, 196, 274, 358, 390, 426 D 1-15 '15, F 1, Mr 1, Ap 1-Je 1 '16
- Automobile engineers, Society of.** See Society of automobile engineers
- Automobile engines**
- Air cooling and two cycles for higher efficiency. C. E. Duryea. Automobile 34:682-3 Ap 13 '16
- Are other cycles possible for automobile engines? J. E. Schipper. diags Automobile 34:707-10 Ap 20 '16; Abstract. Am Soc M E J 38:503 Je '16
- Automobile applications of four-cylinder motors. F. E. Watts. Automobile 34:755-9; Discussion. 791-2 Ap 27 '16
- Buick returns to four. il diag Automobile 35:92-4 Jl 20 '16
- Case for the four. J. E. Schipper. Automobile 34:753-4 Ap 27 '16
- Characteristics of the Cole eight. A. A. Buel. Horseless Age 36:544-5 D 15 '15
- Constant pressure cycle possibilities. A. B. Browne and H. Chase. Automobile 34:1105-6, 1118-21 Je 15-22 '16
- Constant pressure cycle truly efficient. A. B. Browne and H. Chase. Automobile 35:935-6+ N 30 '16
- Constant pressure efficiency 25 per cent lower. Automobile 35:352-4 Ag 31 '16
- Design of crankshafts for high speed engines. P. M. Heldt. diags Horseless Age 36:498-501, 536-7+ D 1-15 '15; Abstract. Am Soc M E J 38:94-5 Ja 16
- Development of the American motor car that has led up to the V-type multi-cylinder motor. J. G. Vincent. diags Sci Am 114:26+ Ja 1 '16
- Developments in V-type design. M. Dean. diags Horseless Age 37:197 Mr 1 '16
- Eight-cylinder engines before Indianapolis. S. A. E. C. S. Crawford. diags Horseless Age 36:459 N 15 '15
- Enger twelve convertible to six. il diag Automobile 35:391-2 S 7 '16
- Engine utilizes principle of gradual combustion. J. McIntosh. Automobile 34:985 Je 1 '16
- Engines for 1917 a culmination of refinement. J. E. Schipper. il diags Automobile 35:797-811 N 9 '16
- Essentials of racing engines. Automobile 34:676-8 Ap 13 '16
- Finding spring pressures for tangential cams; chart. Horseless Age 36:539 D 15 '15
- Four-cylinder Farmack engine. il Horseless Age 37:347 My 1 '16
- Franklin—less weight and more power. il diags Automobile 35:136-9 Jl 27 '16
- Good word for four cylinders. Horseless Age 37:356 My 1 '16
- Haynes light twelve in production. il diag Automobile 35:181-3 Ag 3 '16
- Hobblitt steamer system; abstract. Am Soc M E J 38:603 Jl '16
- Hoosier engineers discuss higher compression and increased thermal efficiency. Automobile 34:651 Ap 6 '16
- Increasing the thermal efficiency. C. E. Sargent. Automobile 34:577-9+ Mr 30 '16; Same cond. Power 43:782-3 My 30 '16
- Inertia forces in eight-cylinder engines. Horseless Age 36:457-8 N 15 '15
- Internal combustion engine cycles. A. B. Browne and H. Chase. diags Sci Am S 82:172-4, 186 S 9-16 '16
- Internal combustion motors. F. R. Porter. Automobile 34:759, 791 Ap 27 '16
- Kerosene engine of simple design. il Automobile 34:501 Mr 16 '16
- Leakage past rings 9 per cent water. V: C. Parker. Automobile 33:1108-9 D 16 '15
- Locomobiles improved in detail. il diags Automobile 34:804-6+ My 4 '16
- Matter of stroke; a comparison on the basis of equal cylinder displacement. E: G. Ingram. diags Horseless Age 37:275-6+, 325-7 Ap 1-15 '16
- Measuring engine power. Horseless Age 37:480-1 Je 15 '16
- Milwaukee—Le Roi motor designed for simplicity. diags Automobile 34:365 F 24 '16
- Monroe roadster new engine. il Automobile 35:146-7 Jl 27 '16
- Multi-cylinder motor. L. R. Lohr. il diags Sibley J 30:282-6 Je '16
- Packard 300 cu. in. twelve for aviation. il Automobile 34:795-8 My 4 '16
- Peerless 56—eight cylinder. il diags Horseless Age 37:108-9 F 1 '16
- Possibilities of double expansion engine. J. L. Napier. diags Automobile 34:808-11 My 4 '16
- Power plants are simpler. Automobile 33:1173-6 D 30 '15
- Racing engine design. C: H. John. Horseless Age 37:sup76+ My 15 '16
- Rutenber engines made in four models. diags Automobile 35:58-9 Jl 13 '16
- Sixes vs. eights—methods of comparing engine outputs. A. P. Brush. Horseless Age 36:504 D 1 '15
- Sixteen-valve Stutz roadster ready. il Automobile 35:360 Ag 31 '16
- Sizes of motors for trucks and outline of British practice in this field. W. D. Williamson. Automobile 34:444-6, 476-7, 502-4, 541-3 Mr 9-23 '16
- Solving two-cycle problems. H. J. Kline. Automobile 35:325 Ag 24 '16
- Spring pressure for constant acceleration cams. chart Horseless Age 37:119 F 1 '16
- Strickland four-cycle engine—two-stroke effect. diags Automobile 34:974-5 Je 1 '16; Abstract. Am Soc M E J 38:594-5 Jl '16
- Study of high-speed engines. A. P. Brush. diags Automobile 34:1072-4, 1100 Je 15 '16
- Temperature control in automobile engines; with discussion. C. F. Kettering. Automobile 35:478-9+ S 21 '16
- Tipton uses balanced rotating sleeve. diags Automobile 34:278 F 10 '16
- Trend and possibilities of design. A. L. Clayden and L. V. Spencer. Horseless Age 37:198 Mr 1 '16
- Truck and tractor engines. H. L. Horning. Automobile 35:388-90+, 446-8, 480-2 S 7-21 '16
- Truck engine sizes and formulas. J: Younger. Automobile 34:594-5 Mr 30 '16
- Twelve cylinder vs. the six cylinder motor. J. G. Vincent. Horseless Age 36:410+ N 1 '15
- Two-cycle construction with unusual features. J. McIntosh. Automobile 35:281-2 Ag 17 '16
- Two-cycle engine development neglected—its possibilities. E. W. Roberts. Automobile 35:193 Ag 3 '16
- Two-cycle superior to four-cycle in performance. C: E. Duryea. Automobile 34:1170 Je 29 '16
- Unbalanced forces in V engines. P. M. Heldt. diags Horseless Age 37:115-18 F 1 '16

Automobile engines—Continued

- Uniflow engine for Doble automobile. Power 11:586 O 21 '16
 V motors and vibration. A. A. Bull. Automobile 33:1255 D 30 '15
 Valve accessibility improved. Automobile 34:18 Ja 6 '16
 Valve spring pressures for mushroom cam followers. Horseless Age 36:497 D 1 '15
 Weidely engine on two chassis. diag Automobile 34:686 Ap 13 '16
 Weight eliminated in Peerless eight. diags Automobile 34:318-20 F 17 '16
 Zenith nomograph for displacement and gas velocities. Automobile 35:617 O 12 '16
See also Automobiles; Carbureters; Crank cases; Crankpins; Crankshafts; Cylinders (engines); Gas and oil engines; Motor cycles

Balancing

- Balancing the Hudson super-six. il diag Horseless Age 37:82+ Ja 15 '16
 Hudson crankshaft eliminates friction. il diag Automobile 34:129-30 Ja 20 '16

Bearings

- Bearings for motor car engines. W. Betterton. Engineer 121:201 Mr 3 '16

Cooling

- Air cooling and two cycles to solve troubles. C. E. Duryea. Automobile 35:718 O 26 '16
 Air-cooling most satisfactory. H. A. Grant. Automobile 34:594 Mr 30 '16
 Analyzing engine cooling; results of F. W. Lanchester's researches. A. L. Clayden. diags Automobile 34:490-2, 538-40, 586-91+ Mr 16-30 '16
 Practicable example of air-cooling. J Fr Inst 181:297 F '16
 Pumps and automatic control. P. M. Heldt. diags Horseless Age 37:350-1, 398-9 My 1-15 '16
 Radiators and cooling systems. P. M. Heldt. diags Horseless Age 37:189-93, 238-40, 271-3, 323-5 Mr 1-Ap 15 '16
 Syphon thermostat test. diag Horseless Age 37:355+ My 1 '16
 Two blade fans in vogue. Automobile 34:18 Ja 6 '16

Exhaust

- Beware of petromortis. C. D. Enfield. Horseless Age 37:123 F 1 '16
 Carbon monoxide a poisonous gas. Automobile 34:466-7 Mr 9 '16
 Contamination of air by automobile exhausts. G. L. Apfelbach. Heat & Ven 13:48-9 F '16
 Exhaust turbine drives generator. diags Automobile 34:499 Mr 16 '16
 Petromortis experiences. C. F. Smith. Automobile 34:596 Mr 30 '16

Fuel

- Advantages and disadvantages of kerosene as a fuel. B. H. Pomeroy. Automobile 34:682 Ap 13 '16
 Alcohol-benzol fuel. Automobile 35:282 Ag 17 '16
 Alcohol—the fuel of the future. B. N. Glick. diag Automobile 35:932-4 N 30 '16
 Automobile fuel situation. E. S. Foljambe. map Automobile 34:557-8 Mr 23 '16
 Burning kerosene-gasoline mixtures. diags Sci Am 115:462 N 18 '16
 Devices designed to reduce the size of the fuel bill. il Horseless Age 38:88-90 Ag 1 '16
 Driving tests with benzol and benzol-alcohol mixtures by Baron Von Loew. Automobile 33:709-11, 1061-2 O 14, D 9 '15
 Fuel consumption at different speeds. Horseless Age 37:363-4 My 1 '16
 Kerosene oil men's fuel choice. Automobile 35:683+ O 26 '16
 Kerosene troubles exist in gasoline carburetion. W. P. Deppé. Automobile 34:769-70 Ap 27 '16
 Kerosene vaporizer easy problem. C. E. Lucke. Automobile 34:559-60 Mr 23 '16
 Mixed fuels better than gasoline. Sci Am 114:179 F 12 '16
 Motor fuels; situation in England, and on the continent. V. B. Lewes. Am Gas Light J 103:165-7, 170-1, 178-81 S 13-20 '15; Excerpts. Sci Am S 80:374-5 D 11 '15

- Plan for the use of kerosene. C. E. Lucke. Horseless Age 37:354-5 My 1 '16
 Problems of kerosene. A. L. Clayden. diags Automobile 34:573-6 Mr 30 '16
 Research needed in automobile factories. P. Ten Broeck. Met & Chem Eng 15:552 N 15 '16
 Run your car with molasses! Sci Am 115:344 O 7 '16
 Running on town gas. A. L. Clayden. il Automobile 35:618-21 O 12 '16
 Sawtelle engine has two fuel grades. diags Automobile 35:275 Ag 17 '16
 Solving the gasoline problem. Horseless Age 37:263+ Ap 1 '16
 Troubles with kerosene and water cooling. H. J. Kline. Automobile 35:616-17 O 12 '16
 Trying direct fuel spray. W. F. Bradley. diags Automobile 34:231-2 F 3 '16
 Vaporization of motor fuels. P. S. Tice. Horseless Age 37:434-7 Je 1 '16
See also Gas and oil engines—Fuel; Gasoline; Kerosene

Ignition devices

- Battery ignition. A. Churchward. Horseless Age 37:68 Ja 15 '16
 Battery vs. magneto ignition. F. Conrad. Power 43:201-2 F 8 '16; Same. Sci Am S 81:128 F 19 '16; Same cond. Horseless Age 37:67 Ja 15 '16
 Battery vs. magneto ignition. H. R. Van Deventer. Sci Am 114:301 Mr 18 '16
 Case for the magneto. N. J. Hart. Automobile 34:464 Mr 9 '16
 Construction of high-tension coil. C. E. Manierre. Automobile 33:1148-9 D 23 '15
 Explanation of systems of ignition. Automobile 34:467 Mr 9 '16
 How to avoid plug trouble in racing engines. J. E. Schipper. diag Automobile 34:464 Mr 9 '16
 Ignition most reliable part of car. Automobile 34:931 My 25 '16
 Ignition systems improved in detail. J. E. Schipper. il diags Automobile 33:1041-7+ D 9 '15
 Magneto vs. battery ignition. Horseless Age 37:66 Ja 15 '16
 Make and break both positive. il diag Automobile 35:180+ Ag 3 '16
 Philbrin battery ignition. il diag Automobile 35:584-5 O 5 '16
 Rhoades ignition systems. il Horseless Age 37:17 Ja 1 '16
 Surprises in ignition devices. il Automobile 34:16-17 Ja 6 '16
 Types of spark plug. il Automobile 34:142-3 Ja 20 '16
See also Automobiles—Electric equipment; Gas and oil engines—Ignition; Magnetos

Lubrication

- Data on the oxidation of automobile cylinder oils. C. E. Waters. U S Bur Stand Tech Pa 73:1-20 '16; Same cond. J Ind & Eng Chem 8:587-92 Jl '16; Abstract. Automobile 35:283 Ag 17 '16
 Fuel leak cuts lubricant. A. Auble. Automobile 34:642-3 Ap 6 '16
 Imperfections of lubrication. C. W. Stratford. diag Automobile 34:711-13 Ap 20 '16

Manufacture

- Aluminum alloy pistons. M. R. Machol. il Horseless Age 36:413-16 N 1 '15
 Aluminum cylinders without iron liners. Automobile 34:187 Ja 27 '16
 Aluminum engines coming in France. W. F. Bradley. il Automobile 35:15-17 Jl 6 '16
 Aluminum pistons—metal molds. J. E. Diamond. diags Horseless Age 37:122 F 1 '16; Abstract. Am Soc M E J 38:266 Mr '16
 Efficiency in production of automobile cylinders. il Foundry 44:253-62 Jl '16; Same. Iron Tr R 59:409-18 Ag 31 '16
 Extending aluminum's field. J. E. Diamond. Automobile 35:711-12 O 26 '16
 First and last stages in the building of Buick motors. il Automobile 33:1060 D 9 '15
 Master pattern for an oil pan. J. G. Koegle. diags Foundry 44:115 Mr '16
 Molding the 1917 eight-cylinder Cadillac motor. H. C. Estep. il Foundry 44:447-52 N '16

Automobile engines—Manufacture—Continued

Molding the Packard, twin-six motor castings. il diag plan Foundry 44:1-6 Ja '16
 Secret of aluminum piston success. A. L. Clayden. Automobile 35:317-18 Ag 24 '16

Models

Model for school or motion picture study. il Automobile 33:1057 D 9 '15

Rating

Practical engine rating. E: G. Ingram. Automobile 35:700-3 O 26 '16; Abstract. Am Soc M E J 38:1030-1 D '16

Specifications

Specifications of 54 stock engine models for 1917 produced by 17 manufacturers, including principal dimensions. J. E: Schipper. Automobile 35:808-9 N 9 '16

Testing

Engine testing to the limit; effect of the Hudson motor car company's crankshaft balancing system. il Horseless Age 38:312-13+ N 1 '16

Hudson engine in test runs. Automobile 35:690 O 26 '16

Running on town gas. A. L. Clayden. il Automobile 35:618-21 O 12 '16

Securing even power in cylinders. R. Antony. diags Automobile 35:267-71 Ag 17 '16

Simple tests show car condition. C: E. Manierre. Automobile 35:6-8, 17 Jl 6 '16

Testing of automobile motors. F. Jehle. il Sibley J 30:373-8 Ag '16; Same. Sci Am S 82:326-7 N 18 '16

Valves

Good cooling features Kline rotary valve. diag Automobile 34:500 Mr 16 '16

Knight-type sleeve-valve motor. il diags Sci Am 114:19+ Ja 1 '16

MaB racing engine with rotary conical valves; abstract. diags Am Soc M E J 38:350-1 Ap '16

New type of balanced rotary valve. R. J. Gilcher. diags Sibley J 30:293-4 Je '16

Power lies in valve proportions. A. L. Clayden. diags Automobile 34:928-30 My 25 '16

Schofield motor employs inverted cylindrical cup valve. diags Automobile 34:720-1 Ap 20 '16

Automobile factories

Addition to Detroit plant of Ford motor co. sets new mark for rapid concrete construction. il plan Eng Rec 74:430-1 O 7 '16

Electric ovens in an automobile plant; Willys-Overland co. il Iron Age 98:1215-19 N 30 '16

Enlarge French automobile factories. W. F. Bradley. il Automobile 34:220-2 F 3 '16

Industry adds 11,142,508 sq. ft. in 1915. Automobile 33:1134+ D 23 '15

Lest we forget; New England's pioneers did much to put the industry where it is today. Automobile 34:398-403 Mr 2 '16

Liberty production on quantity basis. il Automobile 35:494-5 S 21 '16

Our industry and preparedness. H. E. Coffin. il Horseless Age 38:145-7+ S 1 '16

Studebaker custom body department. il Horseless Age 38:262-3 O 15 '16

Taylor system in Franklin management. G: D. Babcock. Ind Management 52:339-54 D '16

See also Automobiles—Manufacture; also Ford motor company

Automobile fans. See Automobiles—Fans

Automobile fuel. See Automobile engines—Fuel

Automobile headlights. See Automobiles—Lighting

Automobile horns

Horns better and lower in price. il Automobile 34:139-41 Ja 20 '16

Automobile industry and trade

Automobile chronology for 1915. Automobile 33:1136-8 D 23 '15

Automobile conditions in Europe. Automobile 35:662-3 O 19 '16

Five factors in modern business. H. Chalmers. Horseless Age 37:sup13 Ap 15 '16

How to increase local sales. Horseless Age 37:377-8 My 15 '16

Jobbers and the jobbing trade; prominent concerns and individuals. il Horseless Age 38:227-37 O 1 '16

Securing shipping security. il diags Automobile 34:680-1 Ap 13 '16

Selling cars on time payments. Horseless Age 37:337-8+ My 1 '16

3,114,000 cars in the world. Horseless Age 37:114+ F 1 '16

See also Automobile factories; Automobile service stations; Electric vehicles; Garages; Motor truck industry; Tires (automobile); Tractor industry; also Ford motor company; National association of automobile accessory jobbers; Packard motor car company

Accounting

Accounting system for dealers. Horseless Age 37:343-5 My 1 '16

Advertising

Display signs as sales magnets. A. H. Bartsch. il Horseless Age 38:499-504 Jl 1 '16

Mixing colors in window dressing. W. E. Crane. il Horseless Age 38:182-3+ S 15 '16

Pictorial posters as sales aids. C. C. Casey. il Horseless Age 38:221 O 1 '16

Selling aids for the dealer. il Horseless Age 37:463-8 Je 15 '16

Selling the used car through advertising. E. W. Crane. Horseless Age 38:72-4 Ag 1 '16

Taking advantage of selling aids. A. H. Bartsch. il Horseless Age 37:459-62+ Je 15 '16

Service

Sales boosting service plan. L. Anderson. Horseless Age 38:69-71+ Ag 1 '16

See also Automobile service stations

Australia

Australia needs cheap cars. Automobile 34:511 Mr 16 '16

Australian imports increase 200 per cent. Automobile 35:776 N 2 '16

Australian industries are prosperous. map Automobile 35:198-9 Ag 3 '16

Brazil

Brazil; automobile and general trade conditions. D: Beecroft. map Automobile 35:514-17, 558-61, 600-3 S 28-O 12 '16

Canada

Where service is systematized; Hyslop bros., Toronto. A. M. Botcher. il Horseless Age 38:256-8+ O 15 '16

Denmark

Denmark—a good car market. il map Automobile 35:925-8 N 30 '16

France

Enlarge French automobile factories. W. F. Bradley. il Automobile 34:220-2 F 3 '16

Germany

War develops German industry. E. A. Langdon. Automobile 35:812-14 N 9 '16

Great Britain

British industry better equipped. il Automobile 34:529-33 Mr 23 '16

British trade in strong condition. Automobile 34:283-4 F 10 '16

Italy

Italian car factories speeding up. Automobile 34:888-9 My 18 '16

Italian trade profits by war. W. F. Bradley. il Automobile 34:131-4 Ja 20 '16

Italy developing aeroplane engines. W. F. Bradley. il Automobile 34:182-4 Ja 27 '16

New England

Local distributing done on a big scale; development of Dutee W. Flint's business in southern New England. C. D. Edholm. il Horseless Age 38:496-8+ Jl 1 '16

New South Wales

N. S. W. car imports increase 138%. Automobile 35:614-15 O 12 '16

Automobile industry and trade—Continued**Russia**

Awakening of Russia. N. Kouznetzoff. il map
Automobile 35:568-70 O 5 '16
Condition and development of the automobile
industry in Russia. N. Kouznetzoff. map
Automobile 34:120-1 Ja 20 '16

South Africa

U. S. A. cars most popular in British South
Africa. Automobile 35:455 S 14 '16

South America

South America. D: Beecroft. il map Auto-
mobile 35:128-35, 170-4, 214-19, 258-61 JI 27-Ag
17 '16

Switzerland

Automobile and truck industry in Switzer-
land. E. A. Langdon. Automobile 35:937-8+
N 30 '16

United States

Automobile registrations, licenses, and rev-
enues in the United States, 1915. U S Agric
Circ 59:1-15 '16

Baltimore territory needs 40 per cent more
automobiles for 1916. Automobile 34:202-3
Ja 27 '16

Census figures of the industry. Horseless Age
38:260 O 15 '16

Cleveland, birthplace of the American auto-
mobile, ranks high in car production. R. H.
Jones. il Iron Tr R 59:sup66-7 S 7 '16

Cleveland—rising city in the automobile in-
dustry. Automobile 35:542-4, 586 S 28-O 5 '16

Colorado to have 45,000 cars. H. G. Hedden.
Automobile 35:490-1 S 21 '16

Exports of automobiles, trucks and parts for
June and 12 previous months. Automobile
35:169 Ag 3 '16

Government census on automobile production
in 1914 and 1909. Horseless Age 37:143+ F
15 '16

History of the American automobile indus-
try. D: Beecroft. Automobile 33:775-9, 836-7,
880-1, 932-3, 970-1, 1010-11, 1054-5, 1101, 1150-
1, 1260-1; 34:32-3, 94-3, 152, 195-6, 238-9, 275-
6, 327-8, 370-1, 405-6, 456-7, 507, 548-9+, 592-
3+, 640-1, 679, 724-5, 772-3, 815, 856, 901,
946, 986, 1085, 1132, 1171; 35:29, 71, 109, 143,
194, 240, 280, 326 O 28-Je 1, Je 15-Ag 24 '16

How city people travel; analysis of traffic con-
ditions in Denver, Colorado. R. W. Toll.
maps Gen Elec R 19:54-67 Ja '16

Indiana as an automobile state. Horseless Age
38:185 S 15 '16

Industry adds 11,142,508 sq. ft. in 1915. Auto-
mobile 33:1134+ D 23 '15

Lest we forget; New England's pioneers did
much to put the industry where it is today.
Automobile 34:398-403 Mr 2 '16

Michigan's 1915 registration analyzed. Auto-
mobile 34:508 Mr 16 '16

Minneapolis center of huge and growing
prosperity. D: Beecroft. Automobile 34:267-9
F 10 '16

Motor vehicles in the United States. Munic J
40:306 Mr 2 '16

New England registrations total 185,363 cars
and trucks. D. M. Lay. map Automobile
34:393-7 Mr 2 '16

1915; a master moulder in fashioning the in-
dustry. Automobile 33:1127-31 D 23 '15

Overland, Hudson, Chalmers, Auto-Lite and
United motors in monster merger. Auto-
mobile 34:1049-50 Je 8 '16

Selling cars in the Northwest. W. E. Crane.
il Horseless Age 37:385-7 My 15 '16

754,902 passenger cars made in first 6 months
of 1916. J. E: Schipper. il Automobile 35:
88-91 JI 20 '16

South's profits \$10,000,000,000—car sales gain.
Automobile 34:461-2, 478-8 Mr 9 '16

Specifications of an infant industry; figures
compiled by the National automobile cham-
ber of commerce. Horseless Age 36:526-7 D
15 '15

State of Iowa now has one automobile to each
fifteen inhabitants. Automobile 34:384-5 F
24 '16

Three million automobiles in United States.
D. M. Lay. map Automobile 35:262-6 Ag 17
'16

Toledo—second automobile city. L. V. Spencer.
il Automobile 34:347-52 F 24 '16

Transcendancy; progress of the automobile in-
dustry. Automobile 33:1169-72 D 30 '15

Truth about materials. Automobile 34:265-6
F 10 '16

United States has 2,423,788 cars. D. M. Lay.
maps Automobile 34:303-8 F 17 '16

Wanted, \$100,000,000 worth. A. L. Clayden.
Automobile 34:441-3 Mr 9 '16

What do our exports mean? J. T. Shaw.
Horseless Age 36:399-401 N 1 '15

Year's exports show huge increase. Auto-
mobile 34:380 F 24 '16

Uruguay

Uruguay. D: Beecroft. il Automobile 35:695-8
O 26 '16

Automobile lamps. See Automobiles—Lighting

Automobile laws and regulations

Determination of headlight glare. J. B. Re-
pogle. Automobile 35:890-2 N 23 '16

Regulation of motor vehicle traffic in Seat-
tle. A. J. Falknor. Elec Ry J 48:349-50 Ag
25 '16

See also *jitney buses—Regulation; Motor
trucks—Regulation; Street traffic; Vehicle
licenses*

Automobile lighting. See Automobiles—Lighting

Automobile number plates

Automobile license numbers. Munic J 41:543-4
N 2 '16

Automobile parts

Automobile nomenclature. Automobile 35:34-7
JI 6 '16

Conditions determine to what extent car
builders shall make parts; with discussion.
H. M. Jewett. Automobile 34:954-5 My 25 '16

Parts and materials. il Horseless Age 37:40-6
Ja 1 '16

Automobile patents

Extraordinary transmission system; the in-
vention of P. Jacobson. A. L. Clayden. diags
Automobile 34:841-2 My 11 '16

How an inventor successfully conducted an
infringement suit; the Perlman patent cov-
ering a demountable rim. il Sci Am 114:558+
My 27 '16

New demountable rim patent. diags Auto-
mobile 34:1165 Je 29 '16

Perlman rim patent sustained. diag Horseless
Age 37:154 F 15 '16

Automobile racing

Aitken makes clean sweep at Indianapolis
speedway. il Automobile 35:463-4 S 14 '16

Aitken wins Astor cup at 104.83. D. M. Lay. il
Automobile 35:562-6 O 5 '16

Aitken wins at Cincinnati. il Automobile 35:
418-19 S 7 '16

Aitken wins Harkness trophy race. il Auto-
mobile 35:772-4 N 2 '16

De Palma wins Twin City 150-mile race. Au-
tomobile 35:1+ JI 6 '16

How the Ford racers were rebuilt. W. Blood.
il Automobile 35:465-6 S 14 '16

Hudson super-six stock chassis shatters the
'24-hour record at Sheepshead Bay. il Horse-
less Age 37:388-9 My 15 '16

Making 100 miles in less than 57 minutes.
Horseless Age 36:449 N 15 '15

Maxwell wins Metropolitan race. il Horseless
Age 37:sup4 My 15 '16

Maxwell wins Metropolitan trophy. J. E:
Schipper. il Automobile 34:879-87 My 18 '16

Mercer winner in amateur race at Chicago
with 86.8 miles per hour. il Automobile 34:
933 My 25 '16

1916 racing cars at Sheepshead. il Automobile
34:844-7 My 11 '16

Old European vs. new American racing cars.
L: Delage. Automobile 33:1254 D 30 '15

Pit work at Indianapolis better than in other
recent races. Automobile 34:966+ Je 1 '16

Plans for next year's racing. J. T. Shaw. il
Horseless Age 38:255 O 15 '16

Preparing for Hoosier classic. J. E: Schipper.
il Automobile 34:923-7 My 25 '16

Resta captures Chicago Derby. L. V. Spencer.
il Automobile 34:1066-71 Je 15 '16

Resta wins sweepstakes at Indianapolis. J. E:
Schipper. il Automobile 34:963-5 Je 1 '16

Resta wins 250-mile Grand American. il Auto-
mobile 35:653-5, 673 O 19 '16

Automobile racing—Continued

Road races—East and West. H. T. Mason. *il* Horseless Age 36:483-5+ D 1 '15
 Shorter races feature 1916 schedule. *Automobile* 34:582-3 Mr 30 '16
 Stock car regulations. *Horseless Age* 37:481 Je 15 '16
 Thirty entries for Hoosier race, May 30. *il* Horseless Age 37:381 My 15 '16
 What can we learn from racing? J. E. Schipper. *il* *Automobile* 34:1030-1 Je 8 '16

See also Speedways

Automobile service stations

Electrical service station of Splittorf electrical co., New York city. *il* *Horseless Age* 37:418-19 Je 1 '16
 Furnishing short cuts for the service man. E. V. Rippingille. *il* *Horseless Age* 38:192-3 S 15 '16
 How to anticipate complaints. F. A. Cornell. *Horseless Age* 37:178-9+ Mr 1 '16; Same, with discussion. *Automobile* 34:416-17 Mr 2 '16
 Perfection spring erects service building, New York city. *il* *Automobile* 34:893-5 My 18 '16
 Pierce-Arrow service building, Long Island City, N. Y.; view and plan. *Brickb* 25:pl 151 S '16
 School for the service man. *il* *Horseless Age* 38:219 O 1 '16
 Spring service up-to-date; new building of the Perfection spring company in New York. *il* *Horseless Age* 38:40-2 JI 15 '16
 Standardized service policies. *Horseless Age* 38:510 JI 1 '16
 Where service is systematized; Hyslop bros., Toronto. A. M. Bottcher. *il* *Horseless Age* 38:256-8+ O 15 '16

See also Garages

Automobile signals

Blind turn; its dangers and various methods of solution. C. F. Barrett. *il* *diag Sci Am* 114:24 Ja 1 '16
 Illuminated celluloid hand for automobile signaling. *il* *Sci Am* 115:46+ JI 8 '16

See also Automobile horns

Automobile tires. See Tires (automobile)**Automobile touring**

New England tourist gain 50 per cent. J. T. Sullivan. *map Automobile* 33:1094-6 D 16 '15
 Seeing America and the Lincoln highway. H. B. Joy. *il* *Sci Am* 114:12-13+ Ja 1 '16

Automobile trailers

Trailer that converts any automobile into an eighteen-passenger bus. *il* *diags Sci Am* 115:176 Ag 19 '16
 Trailers in many sizes. *il* *Automobile* 34:778 Ap 27 '16

Automobile trucks. See Electric trucks; Motor trucks**Automobiles**

Abbott-Detroit line—six cylinder model. *il* *Horseless Age* 37:80-1 Ja 15 '16
 Aland sixteen-valve four. *il* *diag Automobile* 35:178-9 Ag 3 '16
 Allen classic. *il* *Horseless Age* 38:155 S 1 '16
 Anderson adds five-passenger roadster. *il* *Automobile* 35:276-7 Ag 17 '16
 Anderson six a southern product. *il* *Automobile* 34:722-3 Ap 20 '16
 Apperson roadplane. *il* *Horseless Age* 38:48 JI 15 '16
 Automobile of 1916. V. W. Pagé. *diags Sci Am* 114:10-11+ Ja 1 '16
 Automobiles for superintendence of and emergency delivery service for construction work. *il* *Eng & Contr* 46:14-15 JI 5 '16
 Automobiles of 1916. *il* *diags Automobile* 33:1185-1244 D 30 '15
 Average spring types show changes. *Automobile* 33:1181 D 30 '15
 Bell offered as touring car and roadster. *il* *Horseless Age* 36:460-1 N 15 '15
 Bour-Davis, a car of much distinction. *il* *Horseless Age* 38:506-7 JI 1 '16
 Bour-Davis six a distinctive design. *il* *diags Automobile* 34:1086-7 Je 15 '16
 Briscoe brings out new four. *il* *Automobile* 35:175-7 Ag 3 '16
 Briscoe 4-24. *il* *Horseless Age* 38:194 S 15 '16
 Brown line built on one chassis. *il* *Automobile* 35:148-9 JI 27 '16

Buick returns to four. *il* *diag Automobile* 35:92-4 JI 20 '16
 Cadillac 55 longer and more luxurious. *il* *Automobile* 35:329-30 Ag 24 '16
 Cadillac type 55. *il* *Horseless Age* 38:195 S 15 '16
 Camping cars as advertisements. *il* *Horseless Age* 38:299 N 1 '16
 Car that stays young. *Automobile* 33:429-31, 517-19, 612-15, 1020-1, 1107+ S 2, 16, 30, D 2, 16 '15
 Case forty—accessibility features. *il* *diags Automobile* 34:534-7 Mr 23 '16
 Case with long stroke engine. *il* *Horseless Age* 37:64-5 Ja 15 '16
 Chalmers 6-30—details and features. *il* *Horseless Age* 36:540-1 D 15 '15
 Chandler models. *il* *Automobile* 35:537 S 28 '16
 Cloverleaf roadster features Crow line. *il* *Automobile* 34:937 My 25 '16
 Columbia six-cylinder well designed. *il* *Automobile* 34:585 Mr 30 '16
 Crow Elk-Hart 35. *il* *Horseless Age* 38:162 S 1 '16
 Delage cars make strong team. *il* *Automobile* 34:546-7 Mr 23 '16
 Detroit model six-45. *il* *Horseless Age* 37:232 Mr 15 '16
 Dixie Flyer. *il* *Horseless Age* 37:270+ Ap 1 '16
 Dixie Flyer battery mounting sole change. *il* *Automobile* 35:358-9+ Ag 31 '16
 Dixie Flyer, 1917. *il* *Horseless Age* 38:199 S 15 '16
 Dorris oiling system now force feed. *il* *Automobile* 34:1160-1 Je 29 '16
 Dort touring car. *il* *Horseless Age* 37:148-9 F 15 '16
 Elcar with touring and roadster bodies. *il* *Horseless Age* 36:502 D 1 '15
 Empire four (1916) now lists at \$935. *il* *Automobile* 34:317 F 17 '16
 Empire four with double cowl body. *il* *Horseless Age* 37:182-3 Mr 1 '16
 Enger twin-unit twelve. *il* *Horseless Age* 38:124 Ag 15 '16
 Father Time the only official tester. A. Winton. *Sci Am* 114:24+ Ja 1 '16
 Field for new achievements in the motor vehicle industry. M. C. Krarup. *Sci Am* 115:12+ JI 1 '16
 Four new cars announced; Paige, Briscoe, Haynes and Studebaker. *Automobile* 33:1245 D 30 '15
 Franklin embodies many refinements. *il* *Horseless Age* 38:126-7 Ag 15 '16
 Franklin—less weight and more power. *il* *diags Automobile* 35:136-9 JI 27 '16
 Glide roomier and more powerful. *il* *Automobile* 35:486-7 S 21 '16
 Glide six-forty for 1917. *il* *Horseless Age* 38:226 O 1 '16
 Grant six for 1917 shows refined detail. *il* *Horseless Age* 37:482-3 Je 15 '16
 Grant six—more room and power. *il* *Horseless Age* 36:426-7 N 1 '15
 H. A. L. twelve an interesting car. *il* *Horseless Age* 38:156-7 S 1 '16
 H-A-L twelve now in production. *il* *Automobile* 35:230-2 Ag 10 '16
 Hackett body is of striking design. *il* *diag Automobile* 35:356-7 Ag 31 '16
 Haynes light twelve cylinder. *il* *Horseless Age* 38:118-19 Ag 15 '16
 Haynes light twelve in production. *il* *diag Automobile* 35:181-3 Ag 3 '16
 Haynes roadster for four passengers. *il* *Automobile* 35:355 Ag 31 '16
 Hollier line now a six and an eight. *il* *Automobile* 35:274 Ag 17 '16
 Hollier six. *il* *Horseless Age* 38:168 S 1 '16
 Homer Laughlin front drive eight. *il* *Horseless Age* 38:167 S 1 '16
 Homer Laughlin light eight. *il* *Automobile* 35:442-3 S 14 '16
 Hudson racer a stock model. E. V. Rippingille. *Horseless Age* 38:308 N 1 '16
 Hudson super-six. *il* *Horseless Age* 37:18-19 Ja 1 '16
 Inter-state features. *il* *Automobile* 35:438-9 S 14 '16
 Jackson line—new eight to lead. *diags Automobile* 35:398-400 S 7 '16
 Jackson 1916 line—four and two eights. *il* *Horseless Age* 36:408-9 N 1 '15

Automobiles—Continued

- Jeffery adds large six. *il* diag Automobile 34: 353-5 F 24 '16
- Jeffery four is fitted with a streamline roll-edge body. *il* Horseless Age 38:43 J1 15 '16
- Jeffery model—six-sixty. *il* Horseless Age 37: 201 Mr 1 '16
- Jeffery six. *il* Horseless Age 38:113 Ag 15 '16
- Jeffery six for 1917. *il* diag Automobile 35: 223-5 Ag 10 '16
- Jeffery six—unique details. *il* diag Horseless Age 37:233 Mr 15 '16
- Jordan—blended ideals. *il* Automobile 35:98-9 J1 20 '16
- King eight has larger motor. *il* Horseless Age 36:468-9 N 15 '15
- King eight is seven-passenger. *il* diag Automobile 33:1052-3 D 9 '15
- King eight, seven-passenger car at \$1,350. *il* Horseless Age 36:532-3 D 15 '15
- Kissel brings out light six. *il* diag Automobile 34:1128-9 Je 22 '16
- Kisselkar hundred point six. *il* Horseless Age 37:156-7 Je 15 '16
- Kline 6-38 refined in detail. *il* Horseless Age 38:224-5 O 1 '16
- Laurel 35. *il* Horseless Age 38:47 J1 15 '16
- Liberty six cylinder. *il* Horseless Age 38:53 J1 15 '16
- Liberty six five-passenger touring car. *il* diag Automobile 34:1156-8 Je 29 '16
- Locomobiles improved in detail. *il* diag Automobile 34:801-6—My 4 '16
- Locomobiles refined in detail. *il* Horseless Age 37:382-3 My 15 '16
- Lozier six-50. *il* Horseless Age 37:184 Mr 1 '16
- McFarlan ninety shows refinement. *il* Horseless Age 37:478-9 Je 15 '16
- Madison chassis—two body models. *il* diag Automobile 35:144-5 J1 27 '16
- Madison six-40 reduced in price. *il* Horseless Age 36:506-7 D 1 '15
- Maibohm roadster. *il* Automobile 35:578-9 O 5 '16
- Maibohm roadster. *il* Horseless Age 38:201 S 15 '16
- Marion—Handley in two models. *il* Automobile 35:95-7 J1 20 '16
- Marmon. *il* Horseless Age 37:14-16 Ja 1 '16
- Marmon is unique car. *il* diag Automobile 33: 1140-6 D 23 '15
- Mecca 30—gearless differential. *il* diag Automobile 33:1016-17 D 2 '15
- Mercer—refinements. *il* diag Automobile 34: 450-2 Mr 9 '16
- Mercer refinements. *il* Horseless Age 36:528-9 D 15 '15
- Mitchell mid-season model. *il* Horseless Age 37:357 My 1 '16
- Moline makes engine changes. *il* Automobile 35:664-5 O 19 '16
- Monitor low priced six. *il* Horseless Age 37:75 Ja 15 '16
- Monroe adds touring car. *il* diag Automobile 35:900-2 N 23 '16
- Monroe roadster, 1917. *il* Horseless Age 38: 169 S 1 '16
- Monster cars hold few records. *il* Automobile 34:843 My 11 '16
- Moon models. *il* Horseless Age 38:163 S 1 '16
- Moon two-unit electric system. *il* Automobile 34:1162-3 Je 29 '16
- Motor car for the multitude. *il* diag Sci Am 115:435 N 11 '16
- National highway twelve new series. *il* Horseless Age 38:78-9 Ag 1 '16
- National twelve. *il* diag Automobile 35:140-2 J1 27 '16
- 1916 cars in review; illustrations and list of names and models. Automobile 33:1213-44 D 30 '15
- 1916 gasoline pleasure cars. *il* Horseless Age 37:4-13 Ja 1 '16
- 1917 tendencies in car design. Horseless Age 38:325-7 N 15 '16
- Oakland adds eight cylinder model 50. *il* Horseless Age 36:462-3 N 15 '15
- Oakland 34 is more powerful. *il* diag Automobile 35:704-7 O 26 '16
- Overland announces a new touring car at \$615. *il* Horseless Age 36:450-1 N 15 '15
- Overland announces three new models. *il* Horseless Age 38:76-7 Ag 1 '16
- Overland new model 85 as four and six. *il* diag Automobile 35:51-3 J1 13 '16
- Packard for 1917 is 2-in. lower in build. *il* Automobile 35:272-3 Ag 17 '16
- Packard twin-six. *il* Horseless Age 38:150-1 S 1 '16
- Paige Fleetwood 6-38. *il* Horseless Age 37:342 My 1 '16
- Paige makes few changes for 1917. *il* diag Automobile 35:54-6 J1 13 '16
- Partin-Palmer touring car model 32. *il* Horseless Age 36:495 D 1 '15
- Paterson models for 1917. *il* Automobile 35: 440-1 S 14 '16
- Paterson six-42. *il* Horseless Age 36:547 D 15 '15
- Pathfinder—twelve-cylinder. *il* Horseless Age 37:104-5 F 1 '16
- Pathfinders for 1917 all twelves. *il* diag Automobile 34:1040-3 Je 8 '16
- Peerless 56—eight cylinder. *il* diag Horseless Age 37:108-9 F 1 '16
- Pilot model six forty-five. *il* Horseless Age 38:268-9 O 15 '16
- Premier—aluminum block engine. *il* Automobile 35:361-3 Ag 31 '16
- Premier aluminum six. *il* Horseless Age 38: 188-9 S 15 '16
- Princess for 1917 is larger. *il* diag Automobile 35:860-1 N 16 '16
- Pullman line with de luxe coupe, 1916. *il* Horseless Age 36:490 D 1 '15
- Regal 4-thirty-two, a comfortable car. *il* Horseless Age 38:518-19 J1 1 '16
- Retrospect of the year 1915; the automobile. Sci Am 114:7 Ja 1 '16
- Roamer, a new light six. *il* Horseless Age 38: 200 S 15 '16
- Roamer—new car of striking appearance. Automobile 34:225 F 3 '16
- Ross eight for 1917. *il* Horseless Age 38:46 J1 15 '16
- Ross eight 1917 model shows no mechanical changes. *il* Automobile 35:9-10 J1 6 '16
- Saxons improved in design. *il* Automobile 35: 534-6 S 28 '16
- Saxons—new series. *il* Horseless Age 38:220 O 1 '16
- Scripps-Booth eight. Horseless Age 38:164 S 1 '16
- Scripps-Booth eight is four-passenger. *il* diag Automobile 34:630-2 Ap 6 '16
- Simplex model 5. *il* Horseless Age 38:117 Ag 15 '16
- Singer aluminum alloy pistons. *il* diag Automobile 35:483-5 S 21 '16
- Sphinx building touring and delivery cars. *il* Horseless Age 36:464-5 N 15 '15
- Stearns-Knight—8 cylinder. *il* diag Horseless Age 37:185 Mr 1 '16
- Sterling has simple chassis. *il* diag Automobile 34:188-9 Ja 27 '16
- Sterling—New York runabout. *il* Horseless Age 37:22 Ja 1 '16
- Studebaker models-A "4" and "6". *il* Horseless Age 37:62-3 Ja 15 '16
- Stutz—easier riding. *il* Automobile 35:228-9 Ag 10 '16
- Stutz new series 1917 car. *il* Horseless Age 38: 122-3 Ag 15 '16
- Sun car; a light-weight six. *il* diag Horseless Age 37:430-1 Je 1 '16
- Sun six uses ejector exhaust. *il* diag Automobile 34:851 My 11 '16
- Trends of the American automobile for six years, showing variations of most important factors in design and manufacture; chart. Automobile 33:1180a D 30 '15
- Vellie design is clean cut. *il* diag Automobile 34:223-5 F 3 '16
- Vellie improves appearance. *il* Automobile 35: 235 Ag 10 '16
- Vellie 1917 line—two models. *il* Horseless Age 38:80-1 Ag 1 '16
- Westcott adjusts to suit driver. *il* Automobile 33:1097 D 16 '15
- Westcott six, series seventeen. *il* Horseless Age 38:264-5 O 15 '16
- Willys-Knight now carries seven. *il* diag Automobile 35:220-2 Ag 10 '16
- Willys-Knight seven passenger. *il* Horseless Age 38:165 S 1 '16
- Willys six resembles Knight four. *il* diag Automobile 35:327-8 Ag 24 '16

Automobiles—Continued

Winton has two new sixes. *il* Automobile 33: 1092-3 D 16 '15
 Wintons—"33" and "48". *il* Horseless Age 37: 112-13 F 1 '16
 Woods dual power—simple control; gasoline electric incorporates simple linkage of internal combustion and electrical units. *il* Automobile 35:364-5 Ag 31 '16
 Woods gasoline-electric. *il* Horseless Age 37: 397 My 15 '16
 Yale eight. *il* Horseless Age 38:309 N 1 '16
 Yale eight in production. *il* Automobile 35: 488 S 21 '16

See also Automobile engines; Electric trucks; Electric vehicles; Fire apparatus, Motor; Garages; Hydromotors; Jitney buses; Motor buses; Motor trucks; Street cleaning apparatus, Motor; Tires (automobile)

Accidents

See Automobile accidents

Axles

Detroit section of the S. A. E. discusses rear axle design. Automobile 34:568-9 Mr 23 '16
 Empire 1-ton axle has no differential. *il* diags Automobile 35:822 N 9 '16
 Increasing activity in axle field. A. L. Clayden. diags Automobile 33:1004-8 D 2 '15
 Peru rear axles in two styles. diags Automobile 35:107-8 J1 20 '16
 Peru 2600-lb. axle with malleable housing. diags Automobile 35:491 S 21 '16
 Semi-floating spells economy. A. M. Laycock. *il* Automobile 35:324-5 Ag 24 '16

See also Automobiles—Gearing; Automobiles—Wheels; Axles; Motor trucks—Axles

Bearings

Bits of ball-bearing experience. Automobile 35:413 S 7 '16
 George automatic roller bearing. diags Automobile 34:189-90 Ja 27 '16; Same. Horseless Age 37:162 F 15 '16
 Schatz annular bearing takes thrust. *il* diags Automobile 33:1068 D 9 '15; Mach 22:530-1 F '16
 Universal has cast iron bearing. diags Automobile 35:28 J1 6 '16

Bibliography

Books on automobiles and gas engines [20 titles]. Mach 22:692 Ap '16

Bodies

Better bodies feature 1917 Grant. *il* Automobile 34:1082-4 Je 15 '16
 Better bodies in Mitchell new six. *il* Automobile 34:760-1 Ap 27 '16
 Body design permits swinging front seat. diags Automobile 35:277 Ag 17 '16
 Car body types officially defined. *il* Horseless Age 38:328-9 N 15 '16
 Chalmers six-30 bodies. *il* Horseless Age 33: 505 J1 1 '16
 Clover-leaf runabout designs. G. J. Mercer. *il* Automobile 35:62-3 J1 13 '16
 Cole convertible bodies. *il* Horseless Age 38: 259 O 15 '16
 Custom-built bodies grow in popularity. D. M. Lay. *il* Automobile 34:485-9 Mr 16 '16
 Dord dimensions close to ideal. E. Planche. diags Automobile 34:505 Mr 16 '16
 Driver's lot 99% discomfort. J. E. Schipper. *il* diags Automobile 34:215-19 F 3 '16
 Efficiency, beauty and comfort the three ideals. C. H. Tuft. Automobile 34:463 Mr 9 '16
 Good proportions on Grant six. J. M. Howe. *il* diags Automobile 34:420 Mr 2 '16
 How to make a stock car comfortable. C. A. Du Bois. *il* Automobile 34:506 Mr 16 '16
 Ideas on body design. Automobile 34:860 My 11 '16
 Interior natural wood finish for automobile bodies. M. C. Hillick. Horseless Age 38:306-7+ N 1 '16
 Kissell all-year town—Victoria body. *il* Automobile 35:319 Ag 24 '16
 Many changes in body design. Automobile 33: 1182-3 D 30 '15
 Modern body nomenclature. *il* Automobile 33: 1184 D 30 '15

Modern body tin and imitation hair. F. R. Porter. Automobile 34:321 F 17 '16
 1916 body design is uniform. G. J. Mercer. *il* diags Automobile 34:113-19 Ja 20 '16
 1916 cars in review; illustrations and list of names and models. Automobile 33:1213-44 D 30 '15

Public must be considered in body design. R. W. Strickland. Automobile 34:363 F 24 '16

Standardized body design is possible. H. L. Kupel. diags Automobile 34:419 Mr 2 '16

Studebaker custom bodies. *il* Automobile 35: 670-2 O 19 '16

Studebaker custom body department. *il* Horseless Age 38:262-3 O 15 '16

Submarine body. *il* Horseless Age 38:110 Ag 15 '16

See also Automobiles—Tops; Automobiles—Upholstery

Brake locks

Goldmerstein electro-magnetic lock for brakes. diags Automobile 35:142 J1 27 '16

Brakes

See Brakes, Automobile

Chassis

Anderson six. *il* Horseless Age 37:384 My 15 '16
 Anti-rattle devices for quietness. diags Automobile 34:13-15 Ja 6 '16
 Chassis simplified for 1916. J. E. Schipper. *il* Automobile 34:26-7 Ja 6 '16
 Details of the Pathfinder twelve chassis. diags Automobile 34:1042 Je 8 '16
 Detroit six has cable brakes. *il* Automobile 34:498-9 Mr 16 '16
 Extension device for increasing loading space on Ford trucks. Munic J 40:908-9 Je 29 '16
 Ford chassis—a dealers' opportunity. *il* Horseless Age 38:125 Ag 15 '16
 Kelly line increased to seven. *il* Automobile 33:1056-7 D 9 '15
 Lexington in two six-cylinder chassis. *il* Automobile 35:612-13 O 12 '16
 McFarlan 1917 built on single chassis. *il* diags Automobile 34:1088-9 Je 15 '16
 Silence—continuous noise. A. L. Clayden. *il* Automobile 35:48-50 J1 13 '16
 Singer one chassis, and that a six for 1916. *il* Horseless Age 36:543 D 15 '15
 Weight eliminated in Peerless eight. diags Automobile 34:318-20 F 17 '16
 Winton sixes on standardized chassis. diags Automobile 34:272-4 F 10 '16

Cleaning

Garage business; washing, cleaning and polishing. P. M. Heldt. *il* diags Horseless Age 38:120-1, 160-1+ 352-3 Ag 15-S 1, N 15 '16
 Soaps for motor cars—what they are made of. F. B. Hays. Horseless Age 36:421 N 1 '15
 Vehicle washing appliances. *il* Horseless Age 37:228-9 Mr 15 '16
 Washing the automobile. F. B. Hays. Horseless Age 37:sup17-18 My 15 '16

Clutches

Clutch design greatly improved. J. E. Schipper. diags Automobile 35:848-9 N 16 '16
 Clutches and gear gates. M. P. Slade. Automobile 33:1112 D 16 '15
 Vesta electro-mechanical clutch proves good on trial. D. S. Hatch. Automobile 34:284+, 308 F 10-17 '16

See also Automobiles—Gearing

Color

Lighter colors are most efficient for cars. M. C. Hillick. Automobile 34:634-5 Ap 6 '16

Control

Car control for legless persons. diags Automobile 34:1125 Je 22 '16

Cost

See also Automobiles—Price lists

Cost of operation

Accurate detailed cost data on use of automobiles in road supervision. E. W. James. Eng & Contr 45:221-2 Mr 1 '16

Automobiles—Cost of operation—Continued

Automobile transportation for county engineers. W. D. Maxwell. Eng & Contr 45:283-4 Mr 22 '16

Automobiles run on four cents a mile in supervising road work. Eng Rec 73:484 Ap 8 '16

Automobiles save 32 cents per mile in road supervision. Automobile 34:408 Mr 2 '16

Comparative cost of operating a passenger gasoline car of same valuation as an electric. Elec R & W Elec'n 68:238 F 5 '16

Cost of automobile transportation for the highway engineer. A. W. Allen. Eng & Contr 46:304 O 4 '16

Cost of operating a Ford car for three years. Eng & Contr 46:124 Ag 9 '16

Cost of operating a Ford car in county road supervision. C. V. Carpenter. Eng & Contr 45:414 My 3 '16

Operating cost records show comparative economy of 65 motor vehicles in Los Angeles water department. B. A. Heinly. il Eng Rec 73:728-32 Je 3 '16

70,000 miles at 3½ cents per mile. Automobile 34:687 Ap 13 '16

See also Electric trucks—Cost of operation; Motor trucks—Cost of operation

Cowl boards

Typical cowl boards; views. Automobile 33:1191 D 30 '15

Cushion springs

Automobile cushion springs; methods of jannanning and means of conveying product. E. F. Lake. il diag plan Mach 22:1071-6 Ag '16

Design

Baggage space—division of brake pull. W. S. Day. diags Horseless Age 37:245 Mr 15 '16

Better engineering in new Regal four. il diags Automobile 34:1126-7+ Je 22 '16

British idea of inexpensive car vastly different from American. diags Automobile 35:306-9 Ag 24 '16

Design tendencies in the new models. E. A. Stephens. Horseless Age 38:148-9 S 1 '16

Idea for sporting phaeton. J. F. Brador. il Automobile 35:720 O 26 '16

Light weight as an ideal in the designing of large cars. Automobile 34:153-6 Ja 20 '16

Trend and possibilities of automobile design. A. L. Clayden and L. V. Spencer. Automobile 34:309-13 F 17 '16; Discussion. 34:359-60+ F 21 '16

See also Automobiles—Fans

Differential

Description of gearless differential. diag Automobile 33:1013 D 2 '15

Development of the automobile differential. V. W. Pagé. diags Sci Am S 81:268-9 Ap 22 '16

Differential increases difficulties for dump trucks. L. G. Bartlett. Automobile 34:771 Ap 27 '16

Facts about no-differential trucks. A. M. Laycock. Automobile 34:727-8 Ap 20 '16

Facts in favor of the blank differential. A. M. Laycock. Automobile 34:1131 Je 22 '16

Ideal objects of a differential. L. H. Scurlock. Automobile 34:1045-6 Je 8 '16

M. & S. differential—new design. diags Horseless Age 37:20 Ja 1 '16

Miller differential has new motion. il Automobile 35:68-9 Jl 13 '16

New mechanical principle in differentials. il Eng M 51:sup4-5 Ag '16

Shall the differential be abandoned? A. L. Clayden. diag Automobile 34:672-3 Ap 13 '16

Substitutes for the differential. D. D. Ormsby. diags Automobile 34:1101-3 Je 15 '16

Two engines as solution of differential problem. W. J. P. Moore. Automobile 34:857-8 My 11 '16

Driving

See Automobile driving

Electric equipment

Accessibility features A-B-C system; 6-volt electric system for Fords has low initial draw on battery. diags Automobile 35:412 S 7 '16

Automobile electricity. J. E. Schipper. diags Automobile 34:619-23, 669-71, 715-18 Ap 6-20 '16

Battery mountings should be accessible. Automobile 34:322 F 17 '16

Electric starting and lighting systems. il diags Sci Am 114:22-3+ Ja 1 '16

Electric system for Ford cars. il Elec W 67:897 Ap 15 '16

Electric systems simpler. A. L. Clayden. il diags Automobile 35:919-24 N 30 '16

Electric transmission is Indiana S. A. E. subject. il diags Automobile 34:800-3 My 4 '16

Electrical equipment report of S. A. E. Automobile 35:645, 679 O 19 '16

Electrical systems simplified. Automobile 33:1179-80 D 30 '15

Eynon heavy-fuel carburetor uses electric heat. diags Automobile 35:401 S 7 '16

Fundamentals of electric equipment. J. Bijur. Automobile 34:89-90, 146-9 Ja 13-20 '16; Abstract. Horseless Age 37:67-8 Ja 15 '16

Gray & Davis electric system for Fords. il Automobile 35:232 Ag 10 '16

Heinze installation for Fords. il Automobile 34:551 Mr 23 '16

Heinze-Springfield single and two unit systems. il Horseless Age 36:538 D 15 '15

Improved automobile starting and lighting battery. il Elec W 68:1114 D 2 '16

Installation of an ammeter on Hupmobile with the Bijur and Westinghouse systems. diags Automobile 35:322-3 Ag 24 '16

Lighting systems simplified. A. L. Clayden. il diags Automobile 33:997-1003 D 2 '15

Locating electric troubles. il Horseless Age 37:362+ My 1 '16

Location of accessories on V motors. il Automobile 33:1205 D 30 '15

Method of installing an ammeter on the Studebaker model 35 between leads A and relay Y. Automobile 35:111 Jl 20 '16

Mounting ammeter on 1915 Hupmobile. plan Automobile 33:1148 D 23 '15

New dyneto starting and lighting units. il Horseless Age 36:547 D 15 '15

Nokolyd motor-car rear signal. il Elec R & W Elec'n 68:37 Ja 8 '16; Elec W 67:169 Ja 15 '16

Rectifier for battery charging. il Automobile 35:539 S 28 '16

Simms-Huff single unit system. il diags Horseless Age 36:542 D 15 '15

Splitdorf starting switch conserves current. il diags Automobile 34:584-5 Mr 30 '16

Trouble-detecting device for gasoline-automobile electric systems. il Elec W 67:394 F 12 '16

Warm hand steering wheel. il Automobile 33:1154 D 23 '15

What happens to a neglected storage battery. J. E. Schipper. il Automobile 35:518-23 S 28 '16

Wiring diagram and sketch illustrating Hudson-Delco third brush regulation. plan Automobile 34:367 F 24 '16

Wiring diagram for the Scripps-Booth. plan Automobile 34:235 F 3 '16

Wiring diagram of electric starting, lighting and ignition system of Maxwell 25. Automobile 35:624 O 12 '16

Wiring diagram of electric system on 1915 model 42 Oldsmobile, showing where to install an ammeter. Automobile 34:1173 Je 29 '16

Wiring diagram of Moline-Knight. plan Automobile 34:367-8 F 24 '16

Wiring diagram of the electric system on the 1913 Hudson. Automobile 35:73 Jl 13 '16

Wiring diagrams of the North East electric systems used on the Metz and Marmon cars. Automobile 34:643 Ap 6 '16

Wiring of Saxon. plan Automobile 34:598 Mr 30 '16

See also Automobile engines—Ignition devices; Automobiles—Equipment and supplies; Automobiles—Lighting; Automobiles—Starting devices; Automobiles—Transmission; Magnetos; Motor trucks—Starting devices

Engines

See Automobile engines

Automobiles—Continued**Equipment and supplies**

Accessories in South America. D: Beecroft. il Automobile 35:302-3, 344-7, 384-7, 428-9, 472-3 Ag 24-S 21 '16
 Accessory improvements reflect car design. Automobile 34:28-9 Ja 6 '16
 Accessory section at the Chicago automobile show features component parts. diags Automobile 34:180-1 Ja 27 '16
 Automobile inventors active abroad. diags Automobile 35:530-3 S 28 '16
 Cold weather profits for energetic dealers. il Horseless Age 38:270-2 O 15 '16
 Jack bracket as standard axle fitting. C. H. Buckman. Automobile 35:241 Ag 10 '16
 Latest products of the parts and accessories manufacturers. il Horseless Age 37:23-39 Ja 1 '16
 McCormick primer is electrically operated. il Automobile 35:579 O 5 '16
 New accessories for the automobile. il Sci Am 114:20-1 Ja 1 '16
 New parts and accessories. See semi-monthly numbers of the Horseless age
 127 new accessory exhibits. Automobile 35:789 N 9 '16
 Recent products and accessories, including those at Chicago show. il Horseless Age 37: 85-94 Ja 15 '16

See also Automobile engines; Automobile horns; Automobiles—Fans; Automobiles—Feeding systems; Automobiles—Radiators; Brakes, Automobile; Carbureters; Magnets; Spark plugs; Speedometers; Tire pumps; Tires (automobile)

Exhibitions

Automobile show, New York. Sci Am 114:80 Ja 15 '16
 Boston show discloses demand equal to expectations. D: Beecroft. il diags Automobile 34: 447-9 Mr 9 '16
 Chicago draws the curtain; sixteenth annual automobile show, 1916. il Automobile 34:171-7 Ja 27 '16
 Exhibitors and plans of New York and Chicago shows. Automobile 35:604-8 O 12 '16
 Louisville show success spells splendid sales season in South for 1916. Automobile 34:432-3 Mr 2 '16
 Many new cars—few surprises. il diags Automobile 34:6-12 Ja 6 '16
 Only one quite new car in Chicago. Automobile 34:178-9 Ja 27 '16
 Salon is an American show. il Automobile 34: 30-1 Ja 6 '16
 Show and the car of 1916. P. M. Heldt. Horseless Age 37:1-3+ Ja 1 '16
 Statistics of the local shows. Horseless Age 37:262 Ap 1 '16
 Switching off the spotlight; New York show discloses attention centered upon whole car rather than upon a part. A. L. Clayden. il Automobile 34:1-5 Ja 6 '16

Fans

Air delivery of propeller type fans; chart. Horseless Age 37:390 My 15 '16
 Capacity of fans with parallel sided, plane blades. Horseless Age 37:196 Mr 1 '16
 Capacity of fans with tapering plane blades; chart. Horseless Age 37:274 Ap 1 '16
 Horse-power equivalent of fan output—plane blades; chart. Horseless Age 37:358 My 1 '16
 Horse power output of helical fans; chart. Horseless Age 37:426 Je 1 '16
 Radiator fans and their design. P. M. Heldt. diags Horseless Age 37:238-40, 271-3, 323-5 Mr 15-Ap 15 '16

Feeding systems

Forced fuel feed vs. automatic. diags Automobile 34:849-50 My 11 '16
 Fuel feed by new method. il diag Automobile 35:668-9 O 19 '16
 Vacuum petrol feed for motor cars. diag Engineer 120:492 N 19 '15

Frames

Determining frame sections. A. L. Nelson. Automobile 34:356-8 F 24 '16

Fuel

See Automobile engines—Fuel

Gearing

Gearsets simplified and refined. D. M. Lay. diags Automobile 35:843-8 N 16 '16
 Laying out chain camshaft drives; with discussion. F. L. Morse. Automobile 33:1008-9, 1037-8 D 2 '15
 Spiral bevel features transmission. Automobile 33:1177-8 D 30 '15
 Wants lower second gear. O. B. Parkinson. Automobile 35:898 N 23 '16
 See also Automobiles—Clutches; Automobiles—Differential; Automobiles—Steering gear; Automobiles—Transmission; Brakes, Automobile; Motor trucks—Gearing

Heaters

Car heaters and some extra profits. il Horseless Age 36:491 D 1 '15
 Heater for automobiles. diags Heat & Ven 12: 52 D '15
 Utility automobile heater. il Heat & Ven 13: 53 F '16

History

History of the American automobile industry. D: Beecroft. Automobile 33:775-9, 836-7, 880-1, 932-3, 970-1, 1010-11, 1054-5, 1101, 1150-1, 1260-1; 34:32-3, 94-5, 152, 195-6, 238-9, 275-6, 327-8, 370-1, 405-6, 456-7, 507, 548-9+, 592-3+, 640-1, 679, 724-5, 772-3, 815, 856, 901, 946, 986, 1085, 1132, 1171; 35:29, 71, 109, 143, 194, 240, 280, 326 O 28-Je 1, Je 15-Ag 24 '16
 Lest we forget; New England's pioneers did much to put the industry where it is today. il Automobile 34:398-403 Mr 2 '16
 New England news of '99. Automobile 34:404 Mr 2 '16

Ignition

See Automobile engines—Ignition devices

Lighting

Automatic controller for automobile lighting systems. il diag Elec W 67:786-7 Ap 1 '16
 Automobile headlights. bibliog Illum Eng Soc 11:29-35 no 1 '16
 Automobile lighting switches. il Elec W 67: 671-2 Mr 18 '16
 Determination of headlight glare. J. B. Replogle. Automobile 35:890-2 N 23 '16
 Electric automobile lamp reducing glare. il Elec W 67:59 Ja 1 '16
 Electric bulbs for automobiles. H: Schroeder. diags Horseless Age 37:70-1 Ja 15 '16
 Eliminating glare is easy. A. L. Clayden. diags Automobile 35:674-5 O 19 '16
 Glaring differences in anti-glare laws. Horseless Age 37:146-7 F 15 '16
 Headlight glare defined. Automobile 34:21 Ja 6 '16
 Jaeger gas-filled lamps for automobile headlights. diag Elec R & W Elec'n 68:123 Ja 15 '16
 New Bosch standard lighting system. il plan Horseless Age 36:494 D 1 '15
 New headlight mountings are rigid. diags Automobile 34:360-1 F 24 '16
 Push-switch control for automobile spotlight. il diag Elec R & W Elec'n 69:735 O 21 '16; Elec W 68:827 O 21 '16
 Solving the problem of the glaring headlight. il Horseless Age 38:196-7 S 15 '16
 Type and size of electric lamp bulbs used on the principal cars for 1916; tabulation. Automobile 34:938-9 My 25 '16
 Waynelite transformer for Ford car lighting systems. il diag Elec W 68:39 JI 1 '16; Elec R & W Elec'n 69:37 JI 1 '16
 What good lighting really is. E. L. Clark. diags plan Automobile 34:409-15, 458-60 Mr 2-9 '16
 See also Automobiles—Electric equipment

Lubrication

Automatically lubricated chassis. il diags Sci Am 114:106-7 Ja 22 '16
 Improving splash oiling. L. V. Spencer. diags Automobile 34:837-40 My 11 '16
 Irish car is self-lubricating. il diags Automobile 33:1048-51 D 9 '15
 Landau-Farr lubricating bolt now on the market. diag Automobile 35:357 Ag 31 '16

Automobiles—Lubrication—Continued

- Oiling system of 1911 Pope-Hartford. diag Automobile 35:150-1 J1 27 '16
 Requirements of automobile lubricants. Automobile 33:1147-8 D 23 '15

Manufacture

- Automobile factories should use more female labor. H. W. Allingham. il Automobile 35: 816-18 N 9 '16
 Bronze alloys for automobile construction. W. M. Corse and G. F. Comstock. Mach 22: 1055-6 Ag '16; Same. Iron Age 98:251-4 Ag 3 '16
 Building up sheet aluminum bodies. il Automobile 34:719 Ap 20 '16
 Conveyor system aids big production. L. V. Spencer. il diag Automobile 35:100-4 J1 20 '16
 Dodge motor assembly progressive. il Automobile 34:372 F 24 '16
 Electricity in automobile manufacturing. il Elec R & W Elec'n 68:324-7 F 19 '16
 Foresight of Henry Ford. E. C. Shumard. Sci Am 113:557 D 25 '15
 How castings for automobiles are inspected. Foundry 44:49-51 F '16
 How to anticipate complaints. F. A. Cornell. Horseless Age 37:178-9+ Mr 1 '16; Same, with discussion. Automobile 34:416-17 Mr 2 '16
 Milling Buick aluminum crank-cases. E. K. Hammond. il diags Mach 22:543-8 Mr '16
 New features in a steel stamping plant. il plan Iron Age 97:649-51 Mr 16 '16
 Special steels. S. L. Hoyt. Am Soc M E J 38: 297-9 Ap '16; Same. Sci Am S 81:366-7 Je 3 '16
 Tool engineering in motor car manufacture. E. K. Hammond and A. A. Dowd. il diags Mach 22:927-54 J1 '16
 Tool system of Cadillac motor car co. E. K. Hammond. il Mach 22:867-75; 23:143-53 Je, O '16
 Welding aluminum automobile bodies. C. R. Sutton. il Iron Age 97:937-9 Ap 20 '16; Same. Metal Work 85:577-9 Ap 28 '16; Same abr. Metal Ind n s 14:220 My '16; Same abr. Met & Chem Eng 14:548-9 My 1 '16

See also Automobile engines—Manufacture; Automobile factories; Automobiles—Gear-ing; Automobiles—Painting; Automobiles—Springs; Automobiles—Standards

Noise

- Anti-rattle devices for quietness. diags Automobile 34:13-15 Ja 6 '16
 Silence—continuous noise. A. L. Clayden. il Automobile 35:48-50 J1 13 '16

Painting

- Painting—a garage opportunity. H. C. Bursley. Horseless Age 37:247+ Mr 15 '16
 Preserving the car's finish. H. C. Bursley. Horseless Age 37:400-1 My 15 '16
 Protecting finish prolongs car life. M. C. Hillick. Automobile 33:1058-9 D 9 '15

Performance

- Automobile performance and methods of comparison. W. T. Fishleigh. Automobile 35: 656-9; Discussion. 35:659+ O 19 '16
 Finding a figure of merit. J. Younger. Automobile 34:1032 Je 8 '16

See also Automobiles—Testing

Price lists

- Car for every prospective purchaser. C. E. Palmer. Sci Am 114:32, 34 Ja 1 '16

Radiators

- American radiator construction. diags Horseless Age 37:427-9 Je 1 '16
 Hudson fits dash radiator control. il Automobile 35:853 N 16 '16
 Radiator design a neglected factor. diag Automobile 34:1154-5 Je 29 '16
 Radiators and cooling systems. P. M. Heldt. diags Horseless Age 37:189-93, 238-40, 271-3, 323-5 Mr 1-Ap 15 '16

- Solderless radiator used in Mack AC trucks. il diag Automobile 34:626 Ap 6 '16

Remodelling

- Winter vehicle used by line patrolmen in snow trails of Wisconsin and Minnesota. il Elec W 67:717 Mr 25 '16

Repair

- Furnishing short cuts for the service man. E. V. Rippingille. il Horseless Age 38:192-3 S 15 '16
 Garage business; the repair shop. P. M. Heldt. Horseless Age 38:198+, 310-11+, 352-3 S 15, N 1-15 '16
 Locating electric troubles. il Horseless Age 37: 362+ My 1 '16
 Rejuvenating wrecked cars. W. F. Bradley. il Automobile 34:1149-53 Je 29 '16
 Simple shop cost system. Horseless Age 38: 114-15 Ag 15 '16

Safety devices and measures

- Auxiliary system of control for automobiles. il Sci Am 114:430 Ap 22 '16

See also Automobile signals

Second-hand

- Value of a used car. W. T. Fishleigh. Horseless Age 37:416-17+ Je 1 '16

Shipment

- Automobile unloading platform. il Ry Age 61: 422 S 8 '16
 Device for increasing security in shipping cars. diags Automobile 35:396 S 7 '16

Signals

See Automobile signals

Skidding

- Automobile which carries its own road. il Sci Am 115:18 J1 1 '16

Specifications

- 1916 passenger automobiles listed with their technical specifications. Automobile 33:1246-53 D 30 '15
 Specifications and details of equipment of cars which started in the 300-mile Cincinnati Derby. Automobile 35:419 S 7 '16
 Specifications of 1916 gasoline cars including those at Chicago show. Horseless Age 37: 58-61 Ja 15 '16
 Specifications of 1917 gasoline cars. il Horseless Age 38:330-41 N 15 '16

Springs

- Adjustable fulcrum for cantilever springs. il diags Automobile 34:978-80 Je 1 '16
 Faults in front spring suspension. H. H. Dyke. diag Automobile 34:550-1 Mr 23 '16
 Getting correct front spring action. H. H. Dyke. diags Automobile 35:236-8 Ag 10 '16
 How upholstery springs are made. E. F. Lake. il Horseless Age 37:421-3 Je 1 '16
 Improving the suspension. il Automobile 34: 144-5 Ja 20 '16
 Jones pneumatic spring. il diag Automobile 34:197 Ja 27 '16
 No magic in spring design. A. L. Clayden. diags Automobile 35:393-6 S 7 '16
 North adjustable cantilever spring. diag Automobile 35:157 J1 27 '16
 Novel and contrasting rear spring suspensions. il Automobile 33:1203 D 30 '15
 Results from a special spring suspension developed for brewery trucks and applicable to automobiles. M. C. Krarup. il diags Automobile 34:493-7 Mr 16 '16; Abstract. Am Soc M E J 38:429 My '16
 Self-tensing springs for varying loads compared with adjustable. M. C. Krarup. diags Automobile 34:1075-8 Je 15 '16
 Sketches made from cars at the Chicago show. il Automobile 34:179 Ja 27 '16
 Spring attachment at shackle-bolt rattle eliminators. G. E. Wendle. diags Automobile 35: 719 O 26 '16
 Spring service up-to-date; new building of the Perfection spring company in New York. il Horseless Age 38:40-2 J1 15 '16
 Springs without shackles possible. diags Automobile 34:766 Ap 27 '16

Automobiles—Springs—Continued

- Testing spring suspension and dampers. diags Automobile 33:1152-3 D 23 '16
Variable springing. Sci Am 114:106 Ja 22 '16
See also Automobiles—Cushion springs; Motor trucks—Springs

Standards

- British standardize automobile steels. A. E. Berriman. Automobile 34:1038-9 Je 8 '16
Cheapening cars by reducing varieties. W. Kent. Automobile 34:624-6 Ap 6 '16
Day by day at the S. A. E. meeting. Horseless Age 37:72-3 Ja 15 '16
Government transportation plans; work of the Society of automobile engineers in standardizing parts. C. F. Clarkson. Sci Am 114:582 Je 3 '16
Industry's elevator service. A. L. Clayden. Automobile 34:663-8 Ap 13 '16
S. A. E. standards committee meeting at Cleveland. Automobile 34:782, 789-90 Ap 27 '16
S. A. E. standards committee widens scope. Automobile 35:699 O 26 '16
S. A. E. standards reports. Automobile 35:644-5+ O 19 '16
Standards committee prepares for winter meeting. diags Horseless Age 36:425+ N 1 '15
Standards divisions of the S. A. E. report progress. Automobile 34:1116-17+ Je 22 '16
Use of S. A. E. standards. Horseless Age 37:353 My 1 '16

See also Automobiles—Manufacture

Starting devices

- New two unit Splittorf-Apelco. il Horseless Age 37:16-17 Ja 1 '16
Steps in installing an air starter. il Automobile 35:72-3 Jl 13 '16
See also Automobiles—Electric equipment; Motor trucks—Starting devices

Statistics

See Automobile industry and trade

Steering gear

- Design of swivel giving centrally pivoted steering. diags Automobile 34:190 Ja 27 '16
Device for improving steering gear of light automobiles. il Sci Am 114:64 Ja 8 '16
Improving the car's steering. C. E. Duryea. diags Automobile 34:236-7 F 3 '16
Steering gears offer many opportunities. J. E. Schipper. diags Automobile 35:839-42 N 16 '16
Two steering head designs new during 1916; plans. Automobile 33:1189 D 30 '15

Steering wheels

- New steering wheel. diag Automobile 34:543 Mr 23 '16
Steering wheel position most vital. A. A. Bateman. Automobile 34:505-6 Mr 16 '16
Warm hand steering wheel. il Automobile 33:1154 D 23 '15

Terminology

- Automobile nomenclature. Automobile 35:34-7 Jl 6 '16

Testing

- 11,000 miles in two weeks; non-stop engine record established by a stock King eight at Sheephead Bay speedway. il Horseless Age 38:49+ Jl 15 '16
King covers 10,850 miles in 2 weeks. il Automobile 35:2-3 Jl 6 '16
King eight on 2-weeks' endurance run. il Automobile 34:1164-5 Je 29 '16
Official report of Cadillac tests. Horseless Age 36:417 N 1 '15
Proposed standard car performance test. Automobile 35:644-5 O 19 '16
Significant automobile record; dependability of the multi-cylinder engine. Sci Am 114:552+ My 27 '16
See also Automobile engines—Testing; Automobile racing

Tires

See Tires (automobile)

Tops

- Automobile top fabrics. diags Textile World 51:4639+ O 28 '16
Convertible and permanent touring tops highly developed. il Automobile 34:24-5 Ja 6 '16

Transmission

- Efficiency of final drive. Automobile 35:366 Ag 31 '16
Electric transmission increases flexibility of gasoline-operated automobiles. il diag Elec W 67:110-11 Ja 8 '16
Electric transmission is Indiana S. A. E. subject. il diags Automobile 34:800-3 My 4 '16
Extraordinary transmission system; the invention of P. Jacobson. A. L. Clayden. diags Automobile 34:841-2 My 11 '16
From engine to axle. B. W. Shilson. J Fr Inst 182:101-2 Jl '16
Owen Magnetic in smaller size announced. il Automobile 33:1093 D 16 '15
Vesta centrifugal electric power transmission for automobiles. il Elec R & W Elec'n 68:304-6 F 12 '16

Upholstery

- Solving the upholstery problem. il Automobile 34:270-1 F 10 '16
See also Automobiles—Cushion springs

Vibration

- V motors and vibration. A. A. Bull. Automobile 33:1255 D 30 '15

Wheels

- Change of wheels adapts automobile for railway use. il Elec Ry J 48:285 Ag 12 '16
Disk wheel of great simplicity. il diag Automobile 35:615 O 12 '16
How an inventor successfully conducted an infringement suit; the Perlman patent covering a demountable rim. il Sci Am 114:558+ My 27 '16
Laminated wood new wheel construction. diags Automobile 35:430 S 14 '16
Motion analysis of rolling automobile wheel. diag Automobile 35:192-3 Ag 3 '16; Correction. 35:282 Ag 17 '16
New demountable rim patent. diags Automobile 34:1165 Je 29 '16
Perlman rim patent sustained. diag Horseless Age 37:161 F 1 '16
Phenomena of a moving automobile wheel. A. J. Dow. Sci Am S 81:215 Ap 1 '16
Pneumatic tire and rim situation. J. E. Hale. diags Automobile 35:64-7 Jl 13 '16
Testing the Smith wheel. il Horseless Age 38:171 S 1 '16

See also Axles; Tires (automobile)

Automobiles, Care of

- Conferring life through care of finish. M. C. Hillick. Automobile 35:316 Ag 24 '16

See also Automobile driving

Automobiles, Electric. *See* Electric trucks; Electric vehicles**Automobiles, Industrial.** *See* Motor trucks**Automobiles, Military**

- Armored car battery for the United States. il Sci Am 114:429 Ap 22 '16
Automobiles in the great war. W. F. Bradley. Sci Am S 82:86-7 Ag 5 '16
Belgians develop new armored cars. il Automobile 35:708-10 O 26 '16
British use many armored cars. W. F. Bradley. il Automobile 34:259-64 F 10 '16
See also Automobiles in war; Motor trucks, Military

Automobiles, Steam

- Defense of the steamer. C. Wadsworth. Sci Am 115:457 N 18 '16
Doble steam car is up-to-date. diags Automobile 35:410-11 S 7 '16
Doble steam driven car. il Horseless Age 38:205+ S 15 '16
Figures of the steam car. J. D. Nies. Sci Am 115:477 N 25 '16
One solution of the fuel problem. C. E. Prior, jr. Sci Am 115:241 S 9 '16
Steam car? Sci Am 115:389 O 28 '16
Steam car—a challenge. C. F. Lambert. Sci Am 115:437 N 11 '16

Automobiles, Steam—Continued

Steam cars, past and present. A. Doble. Automobile 35:781-2 N 2 '16

Automobiles and railroads

New influences affecting passenger traffic. S. M. Felton. Ry Age 61:997-8 D 1 '16

Automobiles and roads

Build roads like railways. J. F. Le Baron. Automobile 34:1172 Je 29 '16

Good roads and the automobile. A. M. Jungmann. il Sci Am S 81:376-7 Je 10 '16

How the motor car builds roads. Horseless Age 38:42 Jl 15 '16

Saving to motor-car owners through smooth roads. J. R. Benton. Eng N 74:1188 D 16 '15

Speed suppressors in roads needed to curb automobiles. T. G. Dabney. Eng Rec 74:600 N 11 '16

What is 100 per cent grade? C. E. Manierre. Automobile 35:898-9 N 23 '16

See also Motor trucks and roads; Speedways

Automobiles in government service

Automobiles of our Uncle Sam. L. L. Robinson. il Horseless Age 37:140-2 F 15 '16

Automobiles in war

Automobile dental shop of the French army. J. Boyer. il Sci Am 114:446 Ap 29 '16

Automobiles and preparedness. Sci Am 115:153 Ag 12 '16

Automobiles and trucks big assets to German army. E. A. Langdon. Automobile 34:684-6 Ap 13 '16

Automobiles in the great war. W. F. Bradley. Sci Am S 82:66-7, 86-7 Jl 29-Ag 5 '16

Belgians build huge repair depot. W. F. Bradley. il Automobile 34:314-16 F 17 '16

Miracle of motor transport; how Verdun, cut off from the railroads, was saved. J. Brinker. il Sci Am 115:38-9 Jl 8 '16

Preparedness and motor trucks. D. M. Lay. il Automobile 34:1020-2, 1080-1 Je 8-15 '16

Rejuvenating wrecked cars. W. F. Bradley. il Automobile 34:1149-53 Je 29 '16

See also Ambulances; Automobiles, Military; Motor cycles in war

Automobiling. *See* Automobile touring**Autoplanograph**

Device maps route of boat in sounding operations. il Eng Rec 74:147 Jl 29 '16

Avalanches. *See* Landslides**Aviation**

Aviation experiences. J. Hartness. il Am Soc M E J 38:911-12 N '16

Possibilities and conditions of crossing the Atlantic by airship. L. d'Orcy. il map Sci Am 115:188+ Ag 26 '16

Possibilities of the transatlantic flight. A. F. Zahm. Sci Am 114:619 Je 10 '16

Possibilities of the transatlantic flight. G. Lanzius. Sci Am 114:469 My 6 '16

Ruth Law and her remarkable flight from Chicago to New York. il Sci Am 115:495+ D 2 '16

War aeroplane here and abroad. B. Williams. Sci Am 115:412 N 4 '16

See also Aeronautics

Safety devices and measures

Flying service, from a medical point of view. H. V. Wells. Sci Am S 82:331 N 18 '16

Aviation sickness. *See* Aviators**Aviators**

Aviation sickness, its symptoms and cure. Sci Am S 81:357 Je 3 '16

Flying service, from a medical point of view. H. V. Wells. Sci Am S 82:331 N 18 '16

Selecting aviators; psycho-motive examination of candidates for the French service. J. Boyer. il Sci Am 115:6-7 Jl 1 '16

Axles

Finding the defects in car axles. R. N. Hemming. il Elec Ry J 48:1025-6 N 11 '16

Foreign specifications for railway material; rails, wheels, axles, tires. G. K. Burgess and P. D. Merica. diags U S Bur Stand Tech Pa 61:1-132 '16

High and low sulphur in basic steel. J. S. Unger. il Iron Age 97:150 Ja 13 '16; Same cond. Eng N 75:365 F 24 '16; Same cond. Eng & Min J 101:597 Ap 1 '16

Reclaiming worn axles. D. Durie. Elec Ry J 47:506 Mr 11 '16

Reclaiming worn button-end axles. A. H. Thompson. diags Elec Ry J 47:788 Ap 22 '16

Reclaiming worn button-end axles. J. N. Graham. diags Elec Ry J 47:89 Ja 8 '16

Trucks, wheels, axles and gearing. il diags Elec Ry J 48:628-35 S 30 '16

See also Automobiles—Axles; Bearings; Locomotives—Axles; Motor trucks—Axles

Azelic acid

Occurrence of azelaic acid as a product of the spontaneous oxidation of fats. E. H. Nicolet and L. M. Liddle. J Ind & Eng Chem 8:416-17 My '16

Azimuth

Fieldbook sheet for azimuth. H. E. McClintock. Eng N 76:363 Ag 24 '16

Improved target for determining azimuth. D. H. Connolly. il Eng & Contr 45:129 F 9 '16; Same. Eng & Min J 101:601 Ap 1 '16; Same. Coal Age 9:638 Ap 8 '16

B

Babbitt metal

Babbitt metal and manganese bronze mixtures. Foundry 44:77 F '16

Babbitt metal manufacture. Metal Ind n s 14:329 Ag '16

Composition of babbitt metal. S. U. Tuspín. Elec W 65:169-70 Ja 16 '15; Same cond. Am Gas Light J 103:355 D 6 '15

Formula to be recommended for use for a soft hammer. G. C. Holder. Metal Ind n s 14:247 Je '16

Making babbitt castings. J. H. Van Deventer. Eng & Min J 100:1051 D 25 '15

Reclaiming oxidized babbitt. D. Durie. Elec Ry J 47:656 Ap 1 '16

Babbitting

Babbitting bearings at the Third avenue railway shops. A. R. Johnson. diags Elec Ry J 48:237-8 Ag 5 '16

Babbitting crossheads. H. C. Gillespie. diag Ry Mech Eng 90:462 S '16

Babbitting jig eliminates hot journals. M. F. Flatley. il Elec Ry J 47:1006-7 My 27 '16

Mandrel for babbitting motor axle bearings. F. G. Lister. diags Elec Ry J 46:1266 D 25 '15

Mold for babbitting connecting-rod bearings. diags Mach 22:332-3 D '15

Reclaiming motor-axle bearings. J. W. Brown. il Elec Ry J 48:1116 N 25 '16

Babul

New methods of utilizing babul pods for tanning. Sci Am 115:177 Ag 19 '16

Babylonia**Antiquities**

Newly discovered story of the garden of Eden. il Sci Am 113:558+ D 25 '15

Backfilling. *See* Trenches**Bacteria**

Removal of the natural impurities of cotton cloth by the action of bacteria. B. S. Levine. J Ind & Eng Chem 8:298-302 Ap '16

Bacteriology

Bacteriology of wounds in war. Sci Am S 81:58-9 Ja 22 '16

How bacteria were first seen. E. W. Bowell. Sci Am S 81:156 Mr 4 '16

Mechanism of protection against bacterial infection. C. G. Bull. Sci Am S 81:87 F 5 '16

Mode of action of ultraviolet radiation in producing sterilization. W. E. Burge. J Fr Inst 182:264-5 Ag '16

See also Water—Bacteriology

Bacteriology, Agricultural. *See* Nitrification**Baekeland, Leo Hendrik, 1863-**

Perkin medal award to L. H. Baekeland; addresses. por J Ind & Eng Chem 8:177-90 F '16

Presentation of Perkin medal to L. H. Baekeland. C. F. Chandler. L. H. Baekeland. Met & Chem Eng 14:147-58 F 1 '16

See also Bakelite

Bafflers

- Baffling causing fire-doors to burn. F. C. Torrance. *diag Power* 44:308-9 Ag 29 '16
 Horizontal and vertical baffling. S. H. Viall. *diags Power* 43:874-7 Je 20 '16
 Horizontal and vertical baffling. W. J. Manhire. *diag Power* 44:357-8 S 5 '16

Bag houses

- Bag-house at Midvale smelter; abstract. L. S. Austin. *diag Am Soc M E J* 38:592-3 Jl '16

Bagdad railway

- Baghdad railway. map *Engineer* 121:112-13 F 4 '16
 Bagdad railway and the European war. L. R. Freeman. *il Ry Age* 60:432-4 Mr 10 '16; Same. *Sci Am S* 81:294-5 My 6 '16

Bakelite

- Bakelite—a synthetic resin. *il Automobile* 34:36+ Ja 6 '16
 Bakelite-Micarta-D gears and pinions. *il Elec R & W Elec'n* 69:693-4 O 14 '16
 Perkin medal award to L. H. Baekeland; presentation address. C. F. Chandler. *J Ind & Eng Chem* 8:179-82 F '16
 Presentation of Perkin medal to L. H. Baekeland. C. F. Chandler; L. H. Baekeland. *Met & Chem Eng* 14:149-51, 154-5 F 1 '16
 Synthetic phenol resins. L. H. Baekeland. *J Ind & Eng Chem* 8:568-70 Je '16
 Synthetic phenol resins. L. V. Redman, A. J. Weith and F. P. Brock. *J Ind & Eng Chem* 8:473-4, 1077 My, N '16

Bakers and bakeries

- Electrically equipped bakery at Boston producing 50,000 loaves of bread daily. *il Elec W* 67:481 F 26 '16
 Electrically operated bakers' machinery. *il Elec R & W Elec'n* 68:609 Ap 1 '16
 Electricity effects economy in a small bakery; Old Home bakery, Auburn, N. Y. *il Elec R & W Elec'n* 68:239-40 F 5 '16
 How one cracker bakery turned to electric drive. *Elec R & W Elec'n* 68:677-8 Ap 15 '16
 Modern bread-baking. *il Sci Am* 114:282-3 Mr 11 '16
 Salt Lake City wholesale baker installs mammoth electric bake oven. B. W. Mendenhall. *il Elec W* 68:437 Ag 26 '16; Same. *Elec R & W Elec'n* 69:369-70 Ag 26 '16

Baking. See Bakers and bakeries; Bread**Baking dishes**

- New glass; and an application of the low reflectivity of glass for radiant heat. E. C. Sullivan and W. C. Taylor. *il J Ind & Eng Chem* 7:1064-5 D '15; Same. *Sci Am S* 82:121 Ag 19 '16

Balance sheets

- Balance sheet valuations. E. D. Page. *J Account* 21:241-54 Ap '16
 Intangible values in balance sheets. *J Account* 22:122-5 Ag '16

Balanced draft. See Mechanical draft**Balances**

- Chain vernier analytical balance. *il Met & Chem Eng* 14:230 F 15 '16
 Densitometer; a simple balance for determining specific gravity. G. A. Shakespeare. *diag Sci Am S* 82:347 N 25 '16
 Keyboard-operated assay and analytical balances. *il Sci Am* 113:543 D 18 '15
 Micro-weighing. *Sci Am S* 80:395 D 18 '15

See also Scales

Balancing machines

- Dynamic balance. N. W. Akimoff. *il diags Am Soc M E J* 38:607-10 Ag '16; Same cond. *Iron Tr R* 58:931-2 Ap 27 '16; Abstract. *Power* 43:817-19 Je 6 '16; Abstract. *Elec Ry J* 47:742 Ap 15 '16; Abstract. *Iron Age* 97:942-3 Ap 20 '16; Same abr. *Heat & Ven* 13:43-4 N '16; Discussion. *Am Soc M E J* 38:610-18 Ag '16

Balancing of machinery

- Balancing kinks. G. Fox. *Power* 44:131-2 Jl 25 '16
 Balancing of rotating machine parts. E. Heidebroek. *diags Am Soc M E J* 38:268-70 Mr '16
 Dynamic balance of machines. C. L. Clarke. *Gen Elec R* 19:649-51 Jl '16; Same. *Sci Am S* 82:262-3 O 21 '16

Balata

- Balata belting. *Eng M* 51:284 My '16
 Use of belt conveyors. A. Robertson and A. M. Johnston. *Eng & Min J* 102:9-10 Jl 1 '16; Same. *Met & Chem Eng* 15:262-3 S 1 '16

Balboa

- Construction of the Balboa dry dock. *il Sci Am* 115:433 N 11 '16

Baldwin, Arthur J.

- Newly elected president of the Hill publishing co. *por Coal Age* 9:296 F 12 '16; *Eng N* 75:289 F 10 '16

Ball bearing retainers

- Making a pressed steel ball retainer. E. Walters. *diags Mach* 22:686 Ap '16

Ball bearings

- Application of ball bearings to railway car journals. O. Bruenauer. *diags Elec Ry J* 47:1096-8 Je 10 '16
 Ball bearing spindles in machine tools. *Mach* 22:956 Jl '16
 Ball bearings for control motor-generator sets on electric locomotives. *il Elec W* 68:38-9 Jl 1 '16; *Mach* 22:980 Jl '16
 Ball bearings for mine motors. A. H. Maccaffray. *Coal Age* 9:584-5 Ap 1 '16
 Ball bearings on electric motors. F. E. Rogers, jr. *il diags Elec R & W Elec'n* 68:560-2 Mr 25 '16
 Balls and ball bearings. *il Sci Am* 114:8-9 Ja 1 '16
 Bits of ball-bearing experience. *Automobile* 35:413 S 7 '16
 Chapman ball bearing spindle. *il Textile World* 51:3905 S 9 '16
 Design and application of ball bearings. H. J. Moysey. *diags Engineer* 120:534 D 3 '15
 Electric motor equipment with ball bearings. *diag Elec W* 68:1019 N 18 '16
 Five-thousand pound capacity ball bearings for electric locomotive service. *il diags Sci Am* 115:97 Jl 29 '16
 Hart-Parr ball-bearing lathe headstock. *diag Mach* 22:876 Je '16
 Improved construction of pickers and cards. E. A. Allen. *il Textile World* 51:2259+ My 6 '16
 Manufacture of ball bearings. *il Mach* 22:1021-5 Ag '16
 Schatz annular bearing takes thrust. *il diag Automobile* 33:1068 D 9 '15; *Mach* 22:530-1 F '16
 Thrust bearing of the ball type. *il Iron Age* 98:985 N 2 '16
 Use of ball bearings on silk machinery. *il diags Textile World* 51:4353 O 7 '16
 Why ball bearings have friction. *il Factory* 17:748+ D '16
 See also Bearings

Ballast

- Ballasted timber floor for the Sibley, Mo., bridge. *diags Eng N* 74:1156-7 D 16 '15
 Ballasting track by contract. *diags Eng N* 75:828-30 My 4 '16
 Crushed gravel ballast on the Rock Island. *Ry Age* 61:144 Jl 28 '16
 Economical device for spreading rock or gravel ballast. C. A. Elliott. *diag Eng & Contr* 46:340 O 18 '16
 Track maintenance; ballasting and surfacing. K. L. Van Auken. *diags Ry R* 59:379-82 S 16 '16

See also Railroads—Track

Ballistics

- Air craft ballistics; abstract. *Am Soc M E J* 38:590 Jl '16
 Drift in artillery fire. G. Greenhill. *Engineer* 122:2-3 Jl 7 '16
 High angle fire at aircraft. G. Greenhill. *Engineer* 122:36-7 Jl 14 '16
 In what position does a pointed infantry bullet, shot vertically along a straight trajectory, return to earth? *Sci Am* 114:9 Ja 1 '16
 Modern artillery and future development. L. Cresap. *il diags Iron Age* 97:39-47 Ja 6 '16
 Physics of a smoke ring. L. F. J. Zerbe. *Sci Am* 114:618 Je 10 '16
 Speed sighting and wind deflection in artillery. G. Greenhill. *diags Engineer* 122:133-4 Ag 18 '16

See also Projectiles; Shooting

Balloons

Aeronautics in the great war; the captive balloon, and the important work it performs. *il* Sci Am S 82:216-18 S 30 '16
 Gas for war balloons. *Am Gas Light* J 104:59-60 Ja 24 '16
See also Aeronautics; Airships

Balloons, Dirigible. *See* Airships

Balls

Home instruction for sheet metal workers; construction of a ten inch ball. *W: Neuhecker. il Metal Work* 85:733-5, 877-9; 86:77-8 Je 2, 30, Ji 21 '16
See also Billiard balls

Balmal. *See* Malt extract

Balsa

Properties of balsa wood; abstract. *R. C. Carpenter. Am Soc M E J* 38:590-1 Ji '16

Balsam. *See* Fir; Storax

Baltimore, Maryland

Bridges

Steel cantilever ribs balanced over main piers to form arched concrete spans. *il diags Eng Rec* 73:677-9 My 20 '16
 Well-balanced mixing plants pour dense concrete from high towers on long highway bridge. *il diags Eng Rec* 73:632-4 My 13 '16

Industries and resources

Value of Baltimore's industries; tabulation. *Automobile* 34:202 Ja 27 '16

Sewerage

Completion of the sewerage system of Baltimore. *G. J. Requardt. il Eng N* 76:736-7 O 19 '16
 Large Baltimore drain has multiple harbor outlet. *diags Eng Rec* 72:738 D 11 '15
 Operation of Baltimore sewage disposal plant. *G. J. Requardt. diag Munic J* 41:538-41 N 2 '16

Baltimore & Ohio railroad

Baltimore & Ohio safety and sanitation rules. *Ry Age* 61:700 O 20 '16
 Four engineering innovations on the Magnolia cutoff. *F. L. Stuart. il diag Eng N* 75:1218-22 Je 29 '16
 Much work for railroad-valuation engineer precedes advent of government forces. *C. W. Stark. Eng Rec* 74:252-3 Ag 26 '16
 90th annual report. *map Ry Age* 61:930-1, 973-6 N 24 '16
 Operation on the Baltimore & Ohio electrification. *il diags map Elec Ry J* 47:1074-9 Je 10 '16
 Passenger station improvements of the Baltimore & Ohio R. R. at Pittsburgh, Pa. *Ry R* 58:2-3 Ja 1 '16
 Safety first on the Baltimore & Ohio R. R. *J. H. Baumgartner. il Ry R* 59:507-9 O 14 '16

Balustrades. *See* Railings

Band-brakes. *See* Brakes

Bandages and bandaging

Bender surgical bandage. *il Textile World* 51:2661 Je 3 '16

Bank buildings

Architecture of democracy; three recent examples from the work of Louis H. Sullivan. *A. N. Rebori. il plans Arch Rec* 39:436-65 My '16
 Bank of Nova Scotia, Havana, Cuba; views and plan. *Arch Rec* 39:46-8 Ja '16
 City national bank, Evansville, Ind.; view and plan. *Arch Rec* 39:173-4 F '16
 Fall River five cents savings bank, Fall River, Mass.; views and plans. *Brickb* 25:133, pl 72-3 My '16
 Northampton institution for savings, Northampton, Mass.; views and plans. *Brickb* 25:133, pl 69-71 My '16
 Recent small bank buildings. *il plans Brickb* 25:114-18 My '16
 Wayne county and home savings bank. *il plan Arch & Bldg* 48:98, 102-4, 108 Je '16
See also Vaults

Bank protection. *See* Rivers—Bank protection; Shore protection

Bank vaults. *See* Vaults

Bankruptcy

Collecting debts from discharged bankrupts. *E. J. Buckley. Metal Work* 86:23 Ji 7 '16

See also Receivers

Banks and banking

American banking abroad—an independent bank; abstract of a proposal by the committee on banking and currency of the National association of manufacturers. *Am Ind* 16:27 Ja '16
 American branch banks in foreign countries. *B. D. Harris. Textile World* 51:1751, 1753+ Ap 8 '16
 Bank acceptances. *S. Walton. J Account* 22:63-4 Ji '16
 What the comptroller would save. *J Account* 21:441-3 Je '16

See also Agricultural credit; Bank buildings; Checks; Credit

Accounting

Statements of borrowers from the viewpoint of the federal reserve bank. *C: A. Peple. J Account* 21:410-23 Je '16

South America

Banking opportunities in South America. *W: H. Lough. U S Bur For & Dom Com* 106:1-156 '15

United States

Banking and currency. *Am Ind* 16:31-2 Je '16

Barbituric acid

Comparison of barbituric acid, thiobarbituric acid and malonylguanidine as quantitative precipitants for furfural. *A. W. Dox and G. P. Plaisance. Am Chem Soc J* 38:2156-64 O '16

Barges

Canadian government hopper barge No. 2. *il plans Int Marine Eng* 21:52-3 F '16
 Canal and river barges. *Engineer* 122:262-3 S 22 '16; *Same. Sci Am S* 82:280-1 O 28 '16
 Method and cost of constructing a pile driver barge. *W. D. Jones. il Eng & Contr* 45:406 My 3 '16
 Shallow draft boats and barges for river navigation. *L. H. Beach and C: Kellar. Int Marine Eng* 21:53-4 F '16

Barges, Concrete

Concrete barges stand test. *Eng N* 76:927 N 16 '16

Barges, Motor. *See* Motor barges

Barges, Steel

Modernizing Mississippi river transportation. *il diags Sci Am* 114:531+ My 20 '16
 Oil-engine driven steel barge for river freight traffic. *il diags Eng N* 75:864-5 My 4 '16

Barite

Barytes and strontium in 1915. *J. M. Hill. Eng & Min J* 102:938 N 25 '16
 Southern barytes mining. *Met & Chem Eng* 15:616 D 1 '16

Barium

Barium industry in the United States since the European war. *M. Toch. J Ind & Eng Chem* 7:993-5 N '15; *Same. Met & Chem Eng* 14:47-9 Ja 1 '16

Barium carbonate

Determination of barium carbonate and barium sulphate in vulcanized rubber goods. *J: B. Tuttle. U S Bur Stand Tech Pa* 64:1-5 '16; *Same. J Ind & Eng Chem* 8:324-6 Ap '16

Barium sulphate

Determination of barium carbonate and barium sulphate in vulcanized rubber goods. *J: B. Tuttle. U S Bur Stand Tech Pa* 64:1-5 '16; *Same. J Ind & Eng Chem* 8:324-6 Ap '16
 Laboratory investigations concerning the reduction of barium sulfate to barium sulfide. *A. E. Wells. il J Ind & Eng Chem* 8:770-7 S '16

Barium sulphide

Laboratory investigations concerning the reduction of barium sulfate to barium sulfide. *A. E. Wells. il J Ind & Eng Chem* 8:770-7 S '16

Bark

Use of bark for paper specialties. *O: Kress. J Ind & Eng Chem* 8:883-6 O '16

- Bark as food**
Tree bark as human food. H. Maxwell. *il Am* For 22:277-80 My '16
- Bar-le-Duc**
Manufacture of Bar-le-Duc jelly. *Sci Am* 115: 394 O 28 '16
- Barns and stables**
Asbestos shingles for farm barns. *il Bldg Age* 38:77-8 N '16
Combination farm and dairy barn. *il diags plans Bldg Age* 38:39-48 N '16
Efficiency of types of farm barns. *Bldg Age* 38:31-2 D '16
Equipment for the modern dairy barn. W. L. Weintz. *il Bldg Age* 38:59-60 N '16
Fire escape for the horse. *il Sci Am* 115:326+ O 7 '16
Group of modern farm buildings; architecture, convenience, lighting and sanitation. *il diags plans Bldg Age* 38:19-28 N '16
Modern barn for the dairy farm. W. E. Frud-den. *il diags plan Bldg Age* 38:27-9 Ag '16
Modern plank frame farm barn. W. E. Frud-den. *il plans Bldg Age* 38:33-8 F '16
Mule barn of Delaware, Lackawanna & Western. *il Coal Age* 9:712-13 Ap 22 '16
Stable and garage of W. D. Straight, esq., Westbury, Long Island, N. Y.; views and plan. *Brickb* 25:107, pl 57-8 Ap '16
Well-arranged farm buildings. *il plans Bldg Age* 38:45-8 D '16
See also Garages; Mine stables
- Heating and ventilation**
- Ventilation of the modern farm barn. L. Klima. *Bldg Age* 38:31-2 N '16
- Barns and stables, Concrete**
Concrete corrals withstand mule heels. *il Eng Rec* 73:108 Ja 22 '16
Concrete stable with hollow walls. *il Bldg Age* 38:46 F '16
Round reinforced concrete barn. *il plan Bldg Age* 38:61-4 N '16
- Barometers**
Curious hygrometers and barometers. S. L. Bastin. *il Sci Am* 115:264+ S 16 '16
- Barometric pressure.** *See* Atmospheric pressure
- Barracks**
Sanitary conveniences for soldiers. *diag plan Metal Work* 86:7-8 Jl 7 '16
- Bartlett, Paul Wayland, 1865-**
Paul W. Bartlett's latest sculpture. J: J. Klaber. *il Arch Rec* 39:265-78 Mr '16
- Barytes.** *See* Barite
- Bascule bridges.** *See* Bridges, Bascule
- Baseball, Automatic**
Automatic baseball game with electric pitcher. *il Elec R & W Elec'n* 68:729-30 Ap 22 '16
Baseball batting practice with an automatic pitching machine. *il Sci Am* 115:79+ Jl 22 '16
- Basements**
Heating a basement store. *plans Metal Work* 85:286, 319-20, 355 F 25-Mr 10 '16
Making basements waterproof. *Factory* 16: 538+ My '16
See also Cellars
- Bath tubs**
Bath tub and its installation. E. R. Porter. *diags Dom Eng* 75:194-5, 229-30 My 13-20 '16
Portable folding bathtub. *il Coal Age* 10:237 Ag 5 '16
- Bathing beaches**
Clarendon municipal bathing beach, Chicago. F. H. Bernhard. *il plan Munic J* 41:477-9 O 19 '16
Flood lighting of bathing beaches. *il Elec R & W Elec'n* 69:59-61 Jl 8 '16
- Bathing suits**
Women's knit bathing suits. *il Textile World* 51:1479 Mr 18 '16
- Bathrooms**
Bathroom not given enough consideration. W: R. Marshall. *Dom Eng* 75:41-2 Ap 8 '16
- Baths, Public**
Plumbing and heating systems in a new municipal bath house being built in Chicago. *il plan Dom Eng* 77:214-15 N 18 '16
- Public bathhouse at Pompeii. R. I. Geare. *il Arch Rec* 39:94-6 Ja '16
- Baths and bathing**
Varnished frog. *Sci Am* 115:482 N 25 '16
See also Bathrooms; Shower baths; Swimming pools
- Batteries (electric).** *See* Electric batteries; Storage batteries
- Battle cruisers.** *See* Warships
- Battlefield relief.** *See* Surgery, Military; War—Relief of sick and wounded
- Battles.** *See* European war—Campaigns and battles; Naval battles
- Battleships.** *See* Warships
- Baumé hydrometer.** *See* Hydrometers
- Bauxite**
Aluminum hydrates in the Arkansas bauxite deposits. D. C. Wysox. *Econ Geol* 11:42-50 Ja '16; Discussion. L. L. Fermor. *Econ Geol* 11:686-90 O '16
Bauxite in the Guianas. *Eng & Min J* 102:301 Ag 12 '16
Bauxite; information relating to the source of aluminum. C. H. Gordon. *Metal Ind n s* 14:16 Ja '16
- Bay windows**
Details of bay window construction. J: Wavrek, jr. *diags Bldg Age* 38:40-1 S '16
Home instruction for sheet metal workers. W: Neubecker. *il diags Metal Work* 84:171-3, 297-8, 423-4, 581-2, 702-4+; 85:181-3, 303-4, 603-5 Ag 6, S 3, O 1, N 5, D 3 '15, F 4, Mr 3, My 5 '16
- Bayonets**
Bayonet fighting. E: C. Crossman. *il Sci Am* 114:148-9 F 5 '16
- Manufacture**
- Preparedness in manufacture; results of lack of preliminary planning in a munitions plant. *Mach* 22:899-900 Je '16
- Testing**
- Testing Lee-Enfield bayonets. J: J. Ralph. *diags Mach* 22:970-2 Jl '16
- Bazin's formula**
Bazin vs. Ganguillet and Kutter. A. G. Hillberg. *Eng Rec* 74:494-5 O 21 '16
Velocity coefficients for a dredged drainage canal. P. V. Hodges. *il Eng N* 76:1052-3 N 30 '16
- Beaches**
Preservation of sandy beaches. E. J. Dent. *diags Sci Am* S 82:236-9 O 7 '16
See also Seashore
- Beacons**
New aviation beacons that make safe the landing of aircraft at night. R. G. Skerrett. *il diag Sci Am* 114:463 My 6 '16
- Beams.** *See* Girders
- Beans**
Milk from beans—a new industry of China. *Sci Am* 115:285 S 23 '16
- Bear lake, Idaho**
Largest bridge caissons rivaled by timber crib sunk in free air in 34 days. *il diags plan Eng Rec* 74:98-100 Jl 22 '16
Water-power storage reservoir with pumping station. *il diags plans map Eng N* 76:67-9, 98-100 Jl 13-20 '16
- Bear river, Idaho**
Pumping station will make deep Idaho lake available as equalizer for Bear river. *il diags map Eng Rec* 74:68-70 Jl 15 '16
- Bearings**
Adjustable rocker shaft bearing. *il Textile World* 51:3997+ S 16 '16
Advance in thrust-bearing design. *Power* 44: 726 N 21 '16
Anti-friction bearings; abstracts. J. R. Sloan; T. V. Buckwalter. *Am Soc M E J* 38:756 S '16
Anti-friction bearings for shop motors. *Ry Mech Eng* 90:142 Mr '16
Anti-friction bearings on main car journals. G. M. Cameron. *Elec Ry J* 46:1263-5 D 25 '15
Aurora, Elgin & Chicago semicircular brass experience. W. J. Bowman. *diags Elec Ry J* 46:1128 D 4 '15

Bearings—Continued

- Bearing—design constants. L. Illmer. *Power* 43: 251-5, 280-2 F 22-29 '16
- Bearing metals. G. H. Tinker. *Iron Tr R* 58: 392 F 17 '16
- Bearings of electrical machinery; abstract. A. Gibson. *Elec W* 66:1437 D 25 '15
- Combining graphite with alloy in the manufacture of self-lubricating metal. R. F. Yates. *il Sci Am* 115:318-19 O 7 '16
- Compression test for bronze; New York Central R. R. *Eng N* 75:501-2 Mr 16 '16
- Electrical machine bearings. G. Fox. *diags Power* 44:340-2 S 5 '16
- Holding down wheels while changing brasses. W. E. Lemp. *diags Ry Mech Eng* 90:307 Je '16
- How to select your bearing metals. T. H. Soule. *il Iron Tr R* 58:102-3 Ja 6 '16
- Lead wires measure clearance in adjusting big pump bearings. G. B. Massey. *Eng Rec* 73:399-400 Mr 18 '16
- Lubricating bearings. W. D. Forbes. *Int Marine Eng* 21:343-4 Jl '16
- Lubrication of bearings and cylinders. F. L. Fairbanks. *diags Power* 42:805-8 D 7 '15; *Abstract. Am Soc M E J* 38:186-7 F '16
- Lubrication of cylinders and bearings. G. J. Trospier. *Power* 43:84-5 Ja 18 '16
- Mechanical method for scraping motor bearings. *il Sci Am* 114:354 Ap 1 '16
- Michell and Kingsbury thrust bearings. H. A. Everett. *diags Int Marine Eng* 21:257-9 My '16
- Mold for babbitting connecting-rod bearings. *diags Mach* 22:332-3 D '15
- Oil grooves in bearings. C. N. Scott. *Textile World* 51:3226+ Jl 15 '16
- Refitting main bearings. *diags Int Marine Eng* 21:383 Ag '16
- Simplex hardened steel bearing liners and keys. *il Mach* 22:353-4 D '15
- See also Automobiles—Bearings; Babbitt metal; Babbitting; Ball bearings; Bridge bearings; Cars—Bearings; Electric motors—Bearings; Lubrication and lubricants; Roller bearings
- Beavers**
- Protection of beaver in Wisconsin. F. D. Moody. *il Am For* 22:220-4 Ap '16
- Bechman, Henry F., 1858-**
- Developing influences—Henry F. Bechman. *por Inland Ptr* 56:822 Mr '16
- Bedford cord**
- Bedford cord with leno stripe. *il Textile World* 51:351 Ja 1 '16
- Weaving Bedford cord. J. Paul. *il Textile World* 51:120 D 11 '15
- Weaving Bedford cords. *diag Textile World* 51:970 F 5 '16
- Beer yeast. See Yeast**
- Beets and beet sugar**
- Application of scientific methods to the improvement of the sugar beet. *Sci Am S* 52:3 Jl 1 '16
- Sugar beet and the gasoline situation. R. B. Smith. *Sci Am* 114:553 My 27 '16
- Belgian Kongo. See Kongo, Belgian**
- Belgian scholarship committee**
- Work of reconstruction. G. Sarton. *Eng & Min J* 101:653 Ap 8 '16; Same. *Arch Rec* 40:496 N '16
- Belgium**
- See also Nieuport, Belgium; Railroads—Belgium
- Industries and resources**
- Great industries in Belgium before and during the war. H. Hubert. *map Engineer* 121:27-9, 55-7, 123-5, 156-7, 220-1 Ja 14-F 18, Mr 10 '16
- Bell, Diving. See Diving bell**
- Bell towers. See Towers**
- Belladonna**
- Growing of drug plants in the United States. L. W. Arny. *Sci Am S* 52:350-1 N 25 '16
- Bells. See Chimes**
- Bells, Electric. See Electric bells**

Belmont, Mrs. Oliver Hazard Perry

- Mrs. O. H. P. Belmont's tea house, Newport, R. I. D. H. Fessenden. *il diags Arch Rec* 39:499-512 Je '16
- Belt lacer**
- Clipper belt lacer. *il Textile World* 51:419 Ja 8 '16
- Mechanical belt lacer which replaces manual belt lacing. *il Sci Am* 114:354 Ap 1 '16
- Belting**
- Balancing a three-floor drive. W. F. Schaphorst. *diag Elec R & W Elec'n* 69:892 N 18 '16
- Belt-drive suggestions. L. F. Lyne. *il Power* 44:87-8 Jl 18 '16
- Belt length chart. W. F. Schaphorst. *Eng & Min J* 102:868 N 11 '16
- Belts—their selection and care. C. J. Morrison. *il diags Eng M* 51:567-85 Jl '16
- Care of belts in service. S. F. Wilson. *Power* 43:708-9 My 16 '16
- Care of leather belting. *Power* 44:722-3 N 21 '16
- Care of leather belts. G. H. Morgan. *Power* 44:428 S 19 '16
- Care of leather belts. J. O. Benefiel. *il Power* 44:124-6 Jl 25 '16
- Centrifugal effect in belting. S. F. Wilson. *il Power* 43:632 My 2 '16
- Economy of solid-woven belts. W. F. Schaphorst. *diag Eng & Min J* 102:747-8 O 21 '16
- Efficiency of cotton belting. F. R. Parsons. *Engineer* 121:544 Je 30 '16
- First aid to slack belts. *il Factory* 17:404 O '16
- Formula for belt slip. W. F. Schaphorst. *Eng & Min J* 102:183 Jl 22 '16
- Formula for the length of an open belt. *Mach* 22:1085 Ag '16
- Horsepower of belts; tabulation. *Power* 43: 806 Je 6 '16
- How to reduce the cost of belting. W. F. Schaphorst. *Iron Age* 97:836-7 Ap 6 '16
- Idlers on vertical belts. L. F. Lyne. *il Power* 44:352 S 5 '16
- Is lime good belt treatment? F. P. Kinder; A. A. Blanchard. *Power* 43:333 Mr 7 '16
- Keeping belt rolls in order. *il Factory* 17:746+ D '16
- Laying out quarter-turn belts. *diags Power* 44:699-700 N 14 '16
- Life of big belt prolonged by two-ply lacing in diagonal holes. H. S. Carpenter. *il diag Eng Rec* 73:844 Je 24 '16
- Main drive benefited by idler. L. F. Lyne. *il Power* 44:141-2 Jl 25 '16
- Manufacture of leather belting. F. H. Small. *Am Soc M E J* 37:679-82 D '15; Same. *Iron Tr R* 57:1174-7+ D 16 '15; *Abstract. Iron Age* 96:1533 D 30 '15
- Matter of slack belts. W. F. Schaphorst. *diag Eng & Min J* 102:467-8 S 9 '16
- Misuse of belt dressing. F. B. Prescott. *Eng & Min J* 101:858 My 13 '16; Same. *Coal Age* 9:966 Je 3 '16
- Placing tight belts on pulleys. A. E. Holaday. *il Eng & Min J* 102:750 O 21 '16; Same. *Coal Age* 10:719 O 28 '16
- Practical belt chart. W. F. Schaphorst. *Eng & Min J* 102:426 S 2 '16
- Purchase and inspection of leather belting. *Eng & Min J* 102:549-50 S 23 '16
- Putting belts on pulleys. A. Avery. *il Power* 44:661 N 7 '16; Same. *Coal Age* 10:795 N 11 '16
- Repairing or splicing belts. G. E. Miles. *il Power* 44:728 N 21 '16
- Rope vs. belt figures. S. F. Wilson. *Power* 43:669; 44:63 My 9, Jl 11 '16
- Saving belts by new bearings. M. B. McNair. *il Factory* 17:200+ Ag '16
- Single and double-ply belts compared for motor drive. W. F. Schaphorst. *Elec R & W Elec'n* 69:26 Jl 1 '16
- Specifications for purchase of leather belting. *Eng & Min J* 102:4 Jl 1 '16
- Static discharge from belts. R. Thistlewhite. *il diags Power* 44:590 O 24 '16
- Transmitting power by leather belting. R. T. Kent. *Iron Age* 97:527-33 Mr 2 '16
- Use of belt dressing. *Coal Age* 10:119, 158-9 Jl 15-22 '16

Belting—Continued

Where belt drive is superior. H: H. Suplee. *il Eng M* 51:697-704 Ag '16

See also Belts, Conveyor; Pulleys; Rope driving

Safety devices and measures

Preventive appliances. *diags Am Ind* 16:sup 1-4 Je '16

Belting, Balata

Balata belting. *Eng M* 51:234 My '16

Belting, Rubber

Manufacture of rubber belting; abstract. J. Tinto. *Iron Age* 97:1260 My 25 '16

Belting, Steel

Steel belts from the point of view of safety of operation; abstract. Willemann. *diags Am Soc M E J* 38:602 Jl '16

Belts, Conveyor

Conveyor-belt calculating chart. J. D. Mooney and D. L. Darnell. *Am Inst Min E Bul* 105: 1937-9 S '15; Same. *Eng & Min J* 100:562-3 O 2 '15; Same. *Met & Chem Eng* 13:818-19 N 1 '15; Same. *Iron Tr R* 57:1231 D 23 '15; Abstract. *Am Soc M E J* 37:610-11 O '15; Excerpts. *Eng & Contr* 44:481 D 22 '15

Nomographic charts for conveyor belt calculations. R. E. Haylett. *Met & Chem Eng* 14: 8-9 Ja 1 '16

Remarkable belt for conveying sugar in bulk. *il Sci Am* 114:279 Mr 11 '16

Use of belt conveyors. A. Robertson and A. M. Johnston. *diags Eng & Min J* 102:9-16 Jl 1 '16; Excerpt. *Met & Chem Eng* 15: 262-3 S 1 '16

Bench marks

Bench mark handbook. *diags Munic J* 40:204 F 10 '16

Precise-level survey of the city of Portland, Ore. W. P. Hardesty. *il diags Eng N* 76: 55-8 Jl 13 '16

Tablets set in concrete for Coast survey stations. *il Eng Rec* 74:470 O 14 '16

Benches, Carpenters'. See Workbenches**Benches, Concrete**

Concrete coming into general use for park benches. *il Concrete* 8:113 Mr '16

Bending machines

Expanded metal bender built on construction job. P. Beall. *il diags Eng N* 76:847 N 2 '16

Bending of pipes. See Pipe bending**Benefit societies**

Mutual beneficial association on the Pennsylvania. N. F. Dougherty. *Ry Age* 59:1093-5 D 10 '15

Benzene

Action of sodium methylete upon the products of nitration of ortho-, para- and meta-chlorotoluenes. H. S. Fry. *Am Chem Soc J* 38:1327-33 Jl '16

Evidence for the electronic formula of benzene and the substitution rule. H. S. Fry. *Am Chem Soc J* 38:1323-7 Jl '16

Evidence for the electronic tautomerism of benzene derivatives. H. S. Fry. *Am Chem Soc J* 38:1333-8 Jl '16

Manufacture of gasoline and benzene-toluene from petroleum and other hydrocarbons. W. F. Rittman, C. B. Dutton and E. W. Dean. *il diags U S Bur Mines Bul* 114:1-214 '16; Abstract. *J Ind & Eng Chem* 8:351-61 Ap '16

Presence of benzene homologs in the high boiling distillates of petroleum. B: T. Brooks and I. W. Humphrey. *Am Chem Soc J* 38:393-400 F '16

Thermal decomposition of the aliphatic hydrocarbon derivatives of naphthalene. G. Egloff. *Met & Chem Eng* 15:125-7 Ag 1 '16

Thermal reactions in the vapor phase of various coal tar oils and distillates. W. F. Rittman and G. Egloff. *Met & Chem Eng* 14:15-18 Ja 1 '16

See also Petroleum—Distillation

Bibliography

Recovery of benzene, toluene, and related products from coal distillation. M. S. Howard. *U S Bur Mines Bul* 114:215-35 '16

Benzol

Alcohol-benzol fuel. *Automobile* 35:282 Ag 17 '16

Benzol production in coke plants. *Am Gas Light J* 104:67 Ja 31 '16; Same. *Coal Age* 9: 162 Ja 22 '16; Same. *Iron Age* 97:215 Ja 20 '16

Determination of benzol in coke-oven gas by Burrell's vapor apparatus. L: C. Whiton. *J Ind & Eng Chem* 8:733-4 Ag '16

Driving tests with benzol and benzol-alcohol mixtures by Baron Von Loew. *Automobile* 33:709-11, 1961-2 O 14, D 9 '15

Extraction of benzol from illuminating gas. D. Florentine. *diags Gas Age* 38:329-31 O 2 '16

Large benzol production. *Gas Age* 38:185 Ag 15 '16

Utilization of by-products from the manufacture of coke. C. G. Atwater. *Iron Tr R* 58: 866 Ap 20 '16

Value of tar ammonia and benzol products in gas making totalled \$25,000,000 in 1915. *Am Gas Light J* 105:204 S 25 '16

Benzoyl-benzoyl chloride

Orthobenzoyl-benzoyl chloride. H. C. Martin. *Am Chem Soc J* 38:1142-4 My '16

Berlin, Germany**Bridges**

Arch viaduct of nickel steel spanning 285 ft. *il diags Eng N* 75:734-5 Ap 20 '16

Berlin university. Testing institute for heating and ventilating appliances

Testing institute for heating and ventilating appliances, at the Berlin university. A. K. Ohmes. *Heat & Ven* 13:38 F '16

Bernini, Giovanni Lorenzo, 1598-1680

Portrait. *Brickb* 25:front N '16

Bernoulli's principle

Principle of Bernoulli and its relation to heating and ventilating of a building. S. R. Williams. *diags Heat & Ven* 13:13-15 F '16

Relation of Bernoulli theorem to heating and ventilating work. O: B. Goldman; S. R. Williams. *Heat & Ven* 13:52-3 My '16

Beryllium

Extraction of beryllium from gadolinite. C. James and G. A. Perley. *Am Chem Soc J* 38: 875-7 Ap '16; Abstract. *Eng & Min J* 102:828 N 4 '16

Metallurgy of the rarer metals. J. W. Richards. *J Ind & Eng Chem* 8:736 Ag '16; Same. *Met & Chem Eng* 15:26-7 Jl 1 '16; Same. *Sci Am S* 82:222 S 30 '16

Beryllium vanadates

Vanadates of beryllium. P. H. M.-P. Brinton. *Am Chem Soc J* 38:2361-6 N '16

Bessemer process

Passing of the acid Bessemer. H. H. Campbell. *Iron Age* 98:302-4 Ag 10 '16; Same. *Sci Am S* 82:286 O 23 '16

Place of the basic Bessemer process. H. H. Campbell. *Iron Age* 98:691-3 S 28 '16

Bethlehem steel corporation

Report for year ended Dec. 31, 1915. *Iron Age* 97:719 Mr 23 '16

Bevel gearing. See Gearing, Bevel**Bevel protractor**

Precision bevel protractor. W. C. Betz. *diag Mach* 22:426 Ja '16

Bevels

Bevels for rafters and hoppers. A. Cole. *diags Bldg Age* 38:39-41 My '16

Bibiru. See Greenheart**Big Horn Canyon, Montana**

Power and irrigation project for the Big Horn Canyon. *il diags map Ry R* 59:436-48 S 30 '16

Billboards. See Billposting**Billiard balls**

Turning ivory billiard balls. E: K. Hammond. *il Mach* 22:376-8 Ja '16; Abstract. *Eng M* 50: 778-9 F '16

Billposting

Billboard regulation; court decisions. J: Simpson. *Munic J* 39:949-51 D 23 '15

Bills and notes

Accepting debtors' notes in settling accounts. E. J. Buckley. *Metal Work* 85:137 Ja 21 '16

Bills of exchange, Domestic. See Acceptances

Bills of lading

- Bill of lading bill reported favorably. W. L. Stoddard. Ry Age 60:1587-8 Je 30 '16
 Bills of lading. S. Walton. J Account 22:147-52 Ag '16
 Federal bill of lading law; Pomerene bill; excerpts. Ry Age 61:451-2 S 15 '16; Ry R 59:493-4 O 7 '16

Binding. See Bookbinding**Bingham & Garfield railway**

- Construction of the Bingham & Garfield Ry. H. C. Goodrich. il maps Ry R 59:232-8 Ag 19 '16

Binghamton, New York**Rapid transit**

- Rehabilitating railway receipts. il map Elec Ry J 48:708-12 O 7 '16

Binoculars. See Field glasses**Bins**

- Capacity of coke bins; chart. N. G. Near. Foundry 44:418a O '16
 Readily built bin has high salvage value. il Eng Rec 74:542 O 28 '16
See also Coal bins; Ore bins

Bins, Concrete

- Design and construction features of a sand and gravel storage plant, Louisville, Ky. G. D. Crain, jr. il diags Concrete 8:219-21 My '16

Biological chemistry

- Analysis of living matter through its reactions to poisons. A. R. Cushny. Sci Am S 82:335-6 N 18 '16
 Specificity of proteins and carbohydrates. E. T. Reichert. Sci Am S 81:226-7 Ap 8 '16
See also Botanical chemistry

Biological specimens

- Making biological specimens transparent. il Sci Am 115:370 O 21 '16

Biology

- Experimental biology; abstract of thirteen papers by Jacques Loeb and Hardolph Wasteneys. Sci Am S 82:85 Ag 5 '16
See also Animals, Habits and behavior of; Bacteriology; Cells; Electrophysiology; Enzymes; Plankton

Birch

- Birches. S. B. Detwiler. il map Am For 22:195-8 Ap '16
 Products and uses of birch. il Am For 22:198-201 Ap '16

Bird houses

- Bird houses; hints on their construction, location and care. N. Dearborn. diags Sci Am S 82:76 Jl 29 '16
 How to attract the summer birds—bird houses. A. A. Allen. il Am For 22:146-9 Mr '16

Birds

- Attracting the winter birds. A. A. Allen. il Am For 21:1102-4 D '15
 Autumn birds and their message; molting. A. A. Allen. il Am For 22:537-40 S '16
 Classification of birds. Am For 22:467-8 Ag '16
 Enemies of birds. A. A. Allen. il Am For 22:405-9 Jl '16
 Implements of birds. A. A. Allen. il Am For 22:82-5 F '16
 Our winter birds and what they do for us. A. A. Allen. il Am For 22:38-40 Ja '16
 Planting to attract birds. A. A. Allen. il Am For 22:209-12 Ap '16
 Return of the birds. A. A. Allen. il Am For 22:273-6 My '16
 What is a game bird? A. A. Allen. il Am For 22:669-73 N '16

See also Color of birds; Nests; also names of birds, e.g. Crows, Jays, Larks

Birds, Migration of

- Bird migration. W. W. Cooke. maps Sci Am S 82:300-3, 314-15 N 4-11 '16

Birds, Photographs and photography of

- Camera that photographs birds on the wing. il Sci Am 115:393 O 28 '16

Birds, Protection of

- Boys, guns, birds and trees. il Am For 22:483-4 Ag '16
 Federal protection of birds. A. A. Allen. il Am For 22:607-9 O '16

Birmingham, Alabama**Railroads**

- Freight yard at Birmingham. il plan Eng N 74:1126-8 D 9 '15

Bismuth

- Bismuth statistics. Eng & Min J 101:82 Ja 8 '16
 Electro-analytical method for the determination and separation of the metals of the copper-tin group. E. P. Schoch and D. J. Brown. diags Am Chem Soc J 38:1660-81 S '16
 Electrolytic determination of bismuth in bismuth β -naphthol. B. L. Murray. J Ind & Eng Chem 8:257-8 Mr '16
 Fire refining of bismuth. Eng & Min J 101:356 F 19 '16
 Prominent mines of Junin, Peru. J. E. Singewald and B. L. Miller. Eng & Min J 102:585-6 S 30 '16

Bitumen. See Asphalt**Bituminous materials**

- American-made mastic substitute for imported rock mastic. D. T. Pierce. Eng & Contr 45:483 My 24 '16
 Bituminous wearing surfaces for old macadam. il Munic J 41:418-22 O 5 '16
 British usage in the nomenclature of bituminous road materials, British engineering standards committee report; excerpts. Good Roads n s 12:31 Jl 1 '16; Munic Eng 51:8 Jl '16; Munic J 12:7-8 J 6 '16
 Increasing stability of bitumens by introduction of colloids. Met & Chem Eng 15:606 N 15 '16
 Lutes and cements. S. S. Sadler. Met & Chem Eng 14:197-200 F 15 '16; Same. Sci Am S 81:278-9 Ap 29 '16
 Pitch-sand mastic filler. J. S. Crandell. il Munic J 40:271-2 F 24 '16
See also Asphalt; Pavements, Bituminous; Roads, Bituminous; Tar

Testing

- Bitumen-testing needles with constant friction. S. Whinery. diag Eng Rec 74:258-9 Ag 26 '16
 Bituminous materials tests for sheet asphalt. F. P. Smith. Eng N 76:205-9 Ag 3 '16
 Effects of exposure on tar products. C. S. Reeve and B. A. Anderton. il diag J Fr Inst 182:463-75 O '16
 Methods for the examination of bituminous road materials. P. Hubbard and C. S. Reeve. diags U S Agric Bul 314:1-48 '15
 Penetration needle for use in testing bituminous materials. C. S. Reeve and F. P. Pritchard. Eng & Contr 45:363 Ap 19 '16
 Revised standard test for penetration of bituminous material. Eng & Contr 46:24 Jl 5 '16
 Standard tests for bituminous materials; report of committee of Am. Soc. of municipal improvements. Eng & Contr 46:384 N 1 '16
 Tests the determination of the cementing for value of bitumens. P. P. Sharples. Good Roads n s 11:150-2 Mr 25 '16

Bituminous pavements. See Pavements, Bituminous**Bituminous roads.** See Roads, Bituminous**Black, William Murray, 1855-**

- Col. William M. Black to be chief of engineers. por Eng N 75:483 Mr 9 '16
 Organizer of Cuban public works department becomes chief of U. S. engineers. por Eng Rec 73:367-8 Mr 11 '16

Black body

- Candle-power of the black body and the mechanical equivalent of light. E. P. Hyde, F. E. Cady, and W. E. Forsythe. J Fr Inst 181:420-1 Mr '16

Blacksmithing

- International railroad master blacksmiths' association 23d annual convention. Ry Mech Eng 90:463-9 S '16; Ry Age 61:316-20 Ag 25 '16; Ry R 59:277-9 Ag 26 '16

See also Forging; Ironwork; Welding

Blanc, Mont

- Cableway and railway for the ascent of Mont Blanc. il diags map Eng N 74:1216-17 D 23 '15

Blast furnace gas

- Furnace gas engine design; abstract. H. Hubert. Iron Age 97:1499 Je 22 '16
 Iron carburization by blast-furnace gas. J. E. Stead. diags Iron Age 98:816-17 O 12 '16; Same cond. Engineer 122:404 N 3 '16
 Modern development in the combustion of blast-furnace gas with special reference to the Bradshaw gas burner. K. Huessener. il diags Am Inst Min E Bul 110:443-74 F '16; Abstract. Iron Age 98:82-3 Jl 13 '16; Abstract. Iron Tr R 59:1056 N 23 '16; Discussion. Am Inst Min E Bul 113:932-5 My '16
 Utilization of blast furnace gas. A. N. Diehl. diags Iron Tr R 57:946-8, 993-7, 1040-2 N 11-25 '15; Same cond. Iron Age 97:1384-8 Je 8 '16; Abstract. Iron Tr R 57:853-6 O 28 '15
 Washing blast furnace gas at South Chicago. il diags Iron Age 97:53-7 Ja 6 '16
 Washing blast-furnace gases, patented process of Hermann A. Brassert. diag Met & Chem Eng 14:396 Ap 1 '16

Blast furnace stoves

- Flue structure for hot-blast stoves. diags Iron Age 97:668 Mr 16 '16
 Heat balance of a blast-furnace stove. R. S. G. Knight. diag Iron Age 98:1104-7 N 16 '16

Blast furnaces

- Available hearth heat of the blast furnace. A. L. Feild. Met & Chem Eng 14:377-9 Ap 1 '16
 Available hearth heat of the blast furnace. J. E. Johnson, jr. Met & Chem Eng 14:464-5 My 1 '16
 Blast furnace irregularities and their treatment. J. E. Johnson, jr. Met & Chem Eng 15:69-77, 127-30 Jl 15-Ag 1 '16
 Blast furnace products. J. E. Johnson, jr. Met & Chem Eng 15:324-8 S 15 '16
 Blast-furnace tapping by electricity. Eng & Min J 101:603, 698-9, 951; 102:516-17 Ap 1, 15, My 27, S 16 '16
 Blast furnace top; patent by W. H. Bailey. diag Iron Age 98:693 S 28 '16; Met & Chem Eng 15:537 N 1 '16
 Blast vs. reverberatory furnace. B. Magnus. Eng & Min J 102:668-9 O 7 '16
 Burdening the blast furnace. J. E. Johnson, jr. Met & Chem Eng 14:443-50 Ap 15 '16
 Calculation of the burden of the blast furnace. J. E. Johnson, jr. Met & Chem Eng 14:520-4 My 1 '16
 Calculations with reference to the use of carbon in modern American blast furnaces. H. P. Howland. Am Inst Min E Bul 111: 627-50 Mr '16; Same (is Gruner's ideal now tenable?). Iron Tr R 58:593-600 Mr 16 '16; Abstract (Coke in the blast furnace). Iron Age 97:660 Mr 16 '16; Discussion. Am Inst Min E Bul 115:1245-51; 118:1861-2 Jl, O '16
 Cambria increases its capacity; description of no. 9 blast furnace. il diag Iron Tr R 58: 1368-71 Je 22 '16
 Coal and coke efficiency in blast furnace operation. B. F. Burman. Met & Chem Eng 14: 137-40, 256-8 F 1, Mr 1 '16
 Commercial considerations concerning the blast furnace. J. E. Johnson, jr. Met & Chem Eng 15:235-44 S 1 '16
 Desulphurization in the blast furnace. B. Ossann. Iron Age 98:139 Jl 20 '16
 Details of a dry blast apparatus. J. B. Miles. diag Iron Tr R 58:193-4 Ja 20 '16
 Distribution of the charge column and of the ascending gas column. J. E. Johnson, jr. diags Met & Chem Eng 14:642-50 Je 1 '16
 Electric pig-iron furnaces; material and heat balance sheets compared with those of German blast furnaces. B. Naumann. Iron Age 97:834 Ag 6 '16
 Features of the new copper smelting plants in Arizona. A. G. McGregor. il diags Am Inst Min E Bul 116:1264-6 Ag '16; Same. Met & Chem Eng 15:331-3 S 15 '16
 Flow of air in lead blast furnaces. A. W. Tournay-Hinde. Eng & Min J 102:392-3 Ag 26 '16
 Handling the blast furnace charge. G. W. Vreeland. diags Iron Tr R 58:1211-14, 1269-72, 1327-9 Je 1-15 '16; Discussion. 58:1376-81, 1415-18; 59:79-80 Je 22-29, Jl 13 '16; Same cond. Iron Age 97:1332-6; Discussion. 1336-7+ Je 1 '16
 How the tap hole of a blast furnace is opened by an electric arc. il Elec W 67:214 Ja 22 '16

- Johnstown, Pa.—complete blast furnace in 85 days. il Iron Age 97:1441-4 Je 15 '16
 Johnstown, Pa.—quick work in building blast furnace. il Iron Tr R 58:1329 Je 15 '16
 Late blast furnace designs. diags Eng & Min J 102:658-62 O 7 '16
 Measurement of the temperature drop in blast-furnace hot-blast mains. R. J. Wyssor. diag Am Inst Min E Bul 106:2161-70 O '15; Same. Iron Tr R 58:435-7+ F 24 '16; Abstract. Iron Age 96:869 O 14 '15; Discussion. Am Inst Min E Bul 113:909-17 My '16
 Mechanical principles of the blast furnace. J. E. Johnson, jr. diags Met & Chem Eng 14:38-45, 77-87 Ja 1-15 '16
 New semi-thin-lined blast furnace. diag Iron Tr R 58:340 F 10 '16
 Nomographic blast-pressure chart. L. H. Bailey. Met & Chem Eng 14:295 Mr 15 '16
 Operating a small copper blast furnace. A. Bregman. il diags Eng & Min J 102:171-4 Jl 22 '16
 Operation of the blast furnace. J. E. Johnson, jr. Met & Chem Eng 14:210-15, 266-8, 363-72, 591-600 F 15-Mr 1, Ap 1, My 15 '16
 Oxygen enrichment of blast. Iron Age 97:664 Mr 16 '16
 Oxygen gas in blast-furnace operations. D. F. Baker. Iron Age 98:398-9 Ag 24 '16
 Pennsylvania steel co. completes first of new furnaces. S. Higginson. il diags Iron Tr R 58:96-9+ Ja 6 '16
 Portable electric drills for tapping blast furnaces. il Iron Age 98:1111 N 16 '16; Iron Tr R 59:737 O 12 '16
 Profits from the dry blast. diags Iron Age 97: 198-9 Ja 20 '16
 Proper blast for an efficient air furnace. H. Hemenway. Foundry 44:391 S '16
 Rate of driving the blast furnace. J. E. Johnson, jr. Met & Chem Eng 15:21-6 Jl 1 '16
 Raw materials of the blast furnace. J. E. Johnson, jr. Met & Chem Eng 14:318-23 Mr 15 '16
 Rebuilding a blast furnace in 50 days. il Iron Tr R 59:274 Ag 10 '16
 Tuyere connections for copper and lead blast furnaces. R. H. Vail. diags Eng & Min J 102:639-43 O 7 '16
 Zenith blast-furnace record. diag Eng & Min J 101:722 Ap 22 '16
 See also Blast furnace gas; Blast furnace stoves; Cast iron; Coke ovens; Cupola furnaces; Iron metallurgy; Iron works; Slag

Charging

- Charging bell for blast furnaces; patent by J. Kennedy. diags Iron Age 98:297 Ag 10 '16; Iron Tr R 58:1414 Je 29 '16
 Mechanical feedings as applied to silver-lead blast furnaces. L. D. Anderson. il diags Eng & Min J 101:885-8 My 20 '16
 Regulation of blast furnace feeding. L. D. Anderson. diag Eng & Min J 102:624-5 O 7 '16

Safety devices and measures

- Safe practice at blast furnaces. F. H. Willcox. il U S Bur Mines Tech Pa 136:1-68 '16; Same cond. Iron Tr R 59:771-6, 831-5 O 19-26 '16

Blast stoves. See Blast furnace stoves**Blasting**

- Accident in electric blasting. il Coal Age 9: 221, 428, 507, 546, 643-4, 683-4, 767-8 Ja 29, Mr 4, 18-25, Ap 8-15, 29 '16
 Advantages of using strong blasting caps. Eng & Min J 101:12 Ja 1 '16
 Blasting boulders and rock ledges. T. M. Knight. diags Eng & Contr 46:264-5 S 20 '16
 Blasting by use of liquid air. Eng & Min J 101:998 Je 3 '16
 Blasting for steam shovels. S. R. Russell. Eng & Min J 102:221 Jl 29 '16
 Blasting pole holes in clay. J. H. Squires. Elec Ry J 48:29 Jl 1 '16
 Blasting with liquid oxygen in salt mines. Met & Chem Eng 15:653-4 D 1 '16; Same. Sci Am S 82:320 N 11 '16
 Combined electric and time fuses give best blasting results. S. P. Brown. Eng Rec 73: 60 Ja 8 '16
 Correct use of explosives in blasting coal. G. L. Yaste. Coal Age 10:385 S 2 '16

Blasting—Continued

- Device to aid in fuse-spitting. L. Whiting. *il Eng & Min J* 100:927 D 4 '15
- Ditching and digging pole holes with dynamite. T. M. Knight. *diags Eng & Contr* 46:66-8 JI 19 '16
- Drilling and shooting coal. *Coal Age* 9:548-9, 766-7, 811-13, 855-6 Mr 25, Ap 29-May 13 '16
- Dynamiting a deep well to increase the flow. G. F. Alderson. *il Eng & Min J* 102:939 N 25 '16
- Dynamiting a dredgeway under a bridge. P. R. Higgings. *diag Eng & Contr* 46:156-7 Ag 16 '16
- Handling explosives in mines. *Coal Age* 9:163-4 Ja 22 '16
- Lighting a fuse with a fuse. L. B. Cain. *il Eng N* 74:1285 D 30 '15
- Method of breaking through a submerged tunnel heading. R. E. Murphy. *Eng & Contr* 45:431-2 My 10 '16
- Methods of removing stumps by blasting. T. M. Knight. *diags Eng & Contr* 46:150-2 Ag 16 '16
- Miner and safety first. O. Bullock. *Coal Age* 9:347-8 F 19 '16
- Neutralizer of dynamite gases. D. Lay. *Eng & Min J* 101:601 Ap 1 '16
- Primers and misfires. G. P. Links. *Eng & Min J* 101:12 Ja 1 '16
- Proper way to spit fuses. P. E. Barbour. *il Eng & Min J* 101:260 F 5 '16
- Rock drifting in the Morris-Lloyd mine. J. E. Hayden. *diags Eng & Min J* 101:354-5 F 19 '16
- Safety-fuse pointers. *Eng & Min J* 100:967-8 D 11 '15
- Safety in blasting. *Coal Age* 10:318, 439, 649-50 Ag 19, S 9, O 14 '16
- Shot firing in coal mines by electricity controlled from outside. H. H. Clark, N. V. Breth and C. M. Means. *U S Bur Mines Tech Pa* 108:1-33 '15
- Storage and handling of explosives in mines. C. E. Munroe. *Eng & Min J* 101:349-52 F 19 '16
- Tamping in the Treadwell mines. E. P. Kennedy. *Eng & Min J* 101:560 Mr 25 '16
- Topping trees with dynamite. G. S. Binckley. *Eng Rec* 74:479 O 14 '16
- Use of Cordeau-Bickford in deep-blast firing. L. B. Reifsnider. *Eng & Min J* 100:1007-8 D 18 '15
- Use of squibs vs. fuses. *Coal Age* 10:501-2 S 23 '16
- Why blast with fuse and caps? *Coal Age* 10:150-1 JI 22 '16
- Wrecking concrete structures with explosives. P. W. Scharros. *Eng & Contr* 45:293-4 Mr 29 '16
- See also* Coal mines and mining—Explosives; Detonators; Explosives; Mining engineering; Quarries and quarrying

Cost

- Cost of quarry blasting. *Munic Eng* 51:144 O '16
- Reducing quarry costs. S. R. Russell. *Concrete* 9:sup41 O '16

Blasting caps. See Detonators**Bleaching**

- Bleaching and dyeing cotton flannels. *Textile World* 51:1959+ Ap 22 '16
- Bleaching of colored goods. *Textile World* 51:1555+ Mr 25 '16
- Bleaching of fats and oils. *J Ind & Eng Chem* 8:281 Mr '16
- Bleaching of woolen and mixed goods. *Textile World* 51:1555 Mr 25 '16
- Continuous bleaching plant. *diag Textile World* 51:3051 N 25 '16
- Correcting trouble in a cotton bleachery. *Textile World* 51:899 Ja 29 '16
- Decrease in strength of bleached goods. *Textile World* 51:5023 N 25 '16
- Electric salt bleaching. *Textile World* 51:4929 N 18 '16
- Good bleach on artificial silk hosiery. E. C. T. Bick. *Textile World* 51:4158+ S 23 '16
- Liquid chlorine. G. Ornstein. *Met & Chem Eng* 14:217 F 15 '16
- Losses in bleaching cotton toweling goods. *Textile World* 51:3729 Ag 26 '16
- Losses in bleaching union and linen towels. *Textile World* 51:4629 O 28 '16

- Machinery for bleaching, dyeing, and printing cotton fabrics. *diag Engineer* 121:250-1, 308-10, 352-4, 469-71 Mr 24, Ap 14, 28, Je 9 '16
- Modern methods of bleaching linen goods. S. H. Higgins. *Textile World* 51:2941 Je 24 '16
- New process of bleaching. S. F. Peckham. *J Ind & Eng Chem* 8:108-9 F '16; Same abr. *Met & Chem Eng* 14:160 F 1 '16
- Peroxide bleaching and finishing of white serge. *il Textile World* 51:2565+ My 27 '16
- Peroxide bleaching of knit goods. E. C. T. Bick. *Textile World* 51:3293+ JI 22 '16
- Removal of the natural impurities of cotton cloth by the action of bacteria. B. S. Levine. *J Ind & Eng Chem* 8:298-302 Ap '16
- Trouble in boiling cottons. *Textile World* 51:4257 S 30 '16

See also Dyes and dyeing

Bleaching solutions

- Cause of the pink color observed in certain hypochlorite bleaching solutions. H. G. Elledge. *J Ind & Eng Chem* 8:780-1 S '16
- Testing peroxide bleach baths. *Textile World* 51:3205 JI 15 '16

Bleeding. See Bloodletting**Blind, The**

- Fencing tournaments for blind men. A. Kennedy. *il Sci Am* 114:355 Ap 1 '16

Blindness

- Concussion blindness; one of the typical developments of the war. A. F. Hertz and A. W. Ormond. *Sci Am S* 81:175-6 Mr 11 '16

See also Nightblindness

Block signals. See Railroads—Signals**Blockade running**

- Sub-surface blockade running. *il diag Sci Am* 115:151+ Ag 12 '16

Blood

See also Bloodletting

Transfusion

- New method of blood transfusion. *Sci Am* 115:325 O 7 '16

Bloodletting

- Revival of blood letting. *Sci Am* 114:74 Ja 15 '16

Blower systems

- Handling materials in manufacturing plants. R. L. Streeter. *il Eng M* 51:240-6 My '16
- National board of fire underwriters adopts rules regarding installation of blower systems. *diags Heat & Ven* 13:40-2 Ap '16

Blowers

- Boston type blower for flotation and smelter work. *il diag Met & Chem Eng* 14:58 Ja 1 '16
- Combination motor-driven blower for mechanical orchestras. *il diag Elec W* 66:1443 D 25 '15
- Comparative efficiencies of various types of air compressors. *Eng & Min J* 101:255-6 F 5 '16
- Forced draft blowers. *il Eng M* 51:sup1-2 My '16
- Improved Wing blowers. *il diag Eng M* 51:sup 3-4 S '16; *Power* 44:386-7 S 12 '16
- Ingersoll-Rand low-pressure turbo-blower. *il Iron Tr R* 58:993 My 4 '16; *Foundry* 44:207 My '16; *Iron Age* 97:1004 Ap 27 '16; *Coal Age* 9:836 My 20 '16; *Met & Chem Eng* 14:547 My 1 '16; *Ry Mech Eng* 90:266 My '16; *Am Inst Min E Bul* 114:sup2 Je '16; *Power* 43:799 Je 6 '16
- Oerlikon motor-driven blowers and compressors. *il Engineer* 120:535-6 D 3 '15
- Perfect electric motor blast fans. *Sci Am S* 82:291 N 4 '16
- Simplex and Power turbo blowers. *il Power* 44:241-2 Ag 15 '16
- Small centrifugal blower of high pressure. H. F. Schmidt. *il diags Power* 44:294-9 Ag 29 '16; *Abstract. Am Soc M E J* 38:826-7 O '16
- Small electric blower. *il Elec W* 67:506 F 26 '16

See also Blast furnaces; Fans, Mechanical; Soot blowers

Blowholes

- Hawaiian blowholes. V. MacCaughy. *il Sci Am* 113:522 D 11 '15

Blowoff tanks

Question about boiler drip and blowoff. diags
Dom Eng 73:366-7 D 18 '15

Blue print paper

See also Potassium ferricyanide

Blueprinting machinery

Electrically operated continuous blue-print
machine using Cooper Hewitt lamps. il
Elec R & W Elec'n 68:1043-4 Je 3 '16
Mercury-vapor lamps for electric blueprint-
ing. il Elec W 67:1319-20 Je 3 '16

Blueprints

Black-line reproduction of blueprints. Eng N
75:48 Ja 6 '16
Getting men to use shop numbers. D. O.
Barrett. il Factory 16:127 F '16
Liquids for use in the drafting room. Bldg
Age 33:30 S '16
Reproduction of tracings for engineering and
valuation purposes. diag Ry R 58:581-2 Ap
22 '16

Boat building

Amount of material necessary to sheath a
boat. H. A. Everett. diag Int Marine Eng
21:347-8 Ji '16
Efficiency of radial and feathering wheels. Int
Marine Eng 21:474 O '16

See also Shipbuilding; Yachts

Boat lines. See Steamboat lines**Boats, Submarine.** See Submarine boats**Boats and boating**

See also Barges; Car ferries; Dredges;
Ferryboats; Flying boats; Freight ships;
House boats; Motor barges; Motor boats;
Navigation; Shipbuilding; Ships; Steam-
boats; Submarine boats; Towboats

Bog moss. See Sphagnum moss**Bogue, Virgil Gay, 1846-1916**

Sketch. por Eng N 76:768 O 19 '16

Boiler and radiator manufacturers' association, National. See National boiler and radiator manufacturers' association**Boiler braces**

Visits of inspector Brown. J. E. Terman.
diags Power 43:8-9 Ja 4 '16

Boiler cleaning

B. O. E. boiler-tube cleaner. il Power 42:791
D 7 '15
Boiler-cleaning costs. H. A. Cox. Power 43:
741 My 23 '16
Diamond model G mechanical soot blowers.
il Elec W 68:1068 N 25 '16; Ind Management
52:supl-2 D '16
Keeping boiler heating surface clean. il plan
Textile World 51:3899+ S 9 '16
Mechanical soot blowers. P. V. Stephens.
Power 43:784A-784B My 30 '16
Nervous and uncertain water-lines in steam
heating boilers. A. G. King. diags Dom Eng
77:104-6 O 28 '16
Soot blower for water-tube boilers. diag Iron
Age 97:1063 My 4 '16; Elec W 67:1182-3 My
20 '16
Soot cleaner for horizontal boilers. il Iron
Age 97:1199 My 18 '16
Vulcan soot cleaners. il diag Elec W 67:1377
Je 10 '16; Power 44:194-5 Ag 8 '16

Boiler code. See Boilers—Laws and regulations**Boiler corrosion.** See Boilers—Corrosion**Boiler efficiency.** See Boilers—Testing**Boiler explosions**

Analysis of boiler explosion at West River.
N. B. il Power 43:694-6 My 16 '16
Boiler and steam vessel explosion in Switzer-
land; abstract. E. Höhn. diag Am Soc M E J
38:353-4 Ap '16
Boiler explosions during first half of 1915.
Power 43:342-3 Mr 7 '16
Boiler explosions, July 1, 1915, to July 31, 1916;
tabulation. Power 44:653-7 N 7 '16
Disastrous boiler explosion at Jackson, Tenn.
J. A. Willard. il Power 44:434-5 S 19 '16
Explosion of a two sheet boiler at Athol,
Maryland. il Locomotive 31:34-5 Ap '16
Explosion of a two sheet boiler from grooving.
il Locomotive 30:226-7 O '15
Hazard of concrete combustion chamber pav-
ing. J. F. Shank. Locomotive 31:79 Ji '16

Inevitable result of patching a lap crack. il

Locomotive 30:208-9 Ji '15

New Brunswick boiler explosion. il Power 43:
278-9 F 29 '16

Recent heating boiler explosions. il Locomo-
tive 30:202-6 Ji '15

Sawmill boiler exploded. il Power 43:402-3 Mr
21 '16

Two recent boiler explosions. il Locomotive
31:14-17 Ja '16

Boiler feeding. See Feed water**Boiler furnaces.** See Furnaces, Boiler**Boiler heads**

Unstayed dishd heads. Power 43:231 F 15
'16

Boiler inspection

Abstract of annual report of the chief inspec-
tor of locomotive boilers. F. McManamy. Ry
Age 60:24-5 Ja 7 '16; Same. Ry Mech Eng
90:41-3 Ja '16; Same cond. Ry R 58:330-1 Mr
4 '16

Better locomotive boiler inspection; sympo-
sium. Ry Mech Eng 90:93-5 F '16

Boiler inspector and his job; prize article and
one other from boiler inspection competition.

T. T. Ryan; W. J. Gillespie. Ry Age (Mech
ed) 89:635-8 D '15

Inter-boiler inspection. J. C. Hawkins. Power
44:378-80 S 12 '16

Lap-seam boiler again indicted. il Power 43:10-
11 Ja 4 '16

Recording the extent of corrosion in boiler
plate. diags Locomotive 31:2-4 Ja '16

Removable coverings on boiler joints. W. Whit-
lock. Power 43:23 Ja 4 '16

Boiler joints. See Boilers—Joints**Boiler law.** See Boilers—Laws and regulations**Boiler makers' association, Master.** See Master boiler makers' association**Boiler manufacturers' association, American.** See American boiler manufacturers' association**Boiler meters**

Bailey boiler meter. il Am Gas Light J 104:
365 Je 5 '16; Elec Ry J 47:1054 Je 3 '16;
Elec W 67:1320-1 Je 3 '16; Eng & Min J 101:
1034 Je 10 '16; Heat & Ven 13:49-50 Je '16;
Met & Chem Eng 14:667-8 Je 1 '16; Power
43:807-10 Je 6 '16; Ry Mech Eng 90:375-6 Ji
'16; Textile World 51:2673+ Je 3 '16

Recording the performance of large boiler
units. G. Rutherford. Elec W 68:181 Ji 22 '16

Report of station operating committee of
N. E. L. A.; boiler operation. il Power 43:
859-60 Je 13 '16

Boiler plants

Boiler-room cost curves. J. D. Morgan.
Power 44:19-20 Ji 4 '16

Boiler room operation. N. G. Reinicker. Sibley
J 30:196-7 Mr '16

Boiler-room practice at Warrior Ridge. J. C.
Scholl. Power 43:93-4 Ja 18 '16

Central station heating system at Tuskegee.
il diags plans Metal Work 85:37-46 Ja 7 '16

Daily schedule for coal passers in L street
station of Boston Edison company. Elec W
67:943 Ap 22 '16

Developing efficiency in central stations.
C. M. Rogers. Power 44:8-10 Ji 4 '16

Developing efficiency in central stations. H. D.
Fisher. Power 44:251-2 Ag 15 '16

Economics of stoker, economizer and super-
heater. A. A. Potter and S. L. Simmering.
Elec W 67:371-2 F 12 '16; Same. Am Gas
Light J 104:235-6 Ap 10 '16

Efficiency in the boiler room. J. Harrington.
Power 44:270-4 Ag 22 '16

Extension to West Penn co.'s Connellsville
power plant. W. O. Rogers. il diags plan
Power 44:402-6 S 19 '16

Fire room versus engine room. A. Walton.
Textile World 51:993+ F 5 '16

Furnace and boiler losses. R. Cederblom.
diags Power 44:45-7 Ji 11 '16

Handling coal and ashes at Grundy plant,
Bristol, Pa. H. J. Edsall. il plan Power 44:
480-3 O 3 '16

Handling coal and ashes at Northwest station
of Commonwealth Edison co. of Chicago.
T. Wilson. il plan Power 43:769-71 My 30
'16

Boiler plants—Continued

- Handling coal in large boiler houses. H. V. Scheier. *il Coal Age* 10:349-51 Ag 26 '16
- Handy boiler peg board. *il Power* 43:187-8 F 8 '16
- Hot-water heating at Crane plant, Chicago. T. Wilson. *il Power* 44:11-13 S 19 '16
- How a bonus system and steam-flow meter are used to maintain economical loads on boilers in Mineral Point, Wisconsin station. *Elec W* 67:322 F 5 '16
- How to increase steam production. H. R. Callaway. *Eng M* 49:813-9 S '15; Same. *Sci Am S* 80:39-40 D 18 '15
- Important installation of pulverized coal under stationary boilers. *il Met & Chem Eng* 15: 365-6 S 15 '16
- Lake View pumping station, Chicago. T. Wilson. *il diag Power* 44:508-13 O 10 '16
- Manhattan state hospital's central heating plant. G. B. Nichols. *plan Power* 44:748-9 N 28 '16
- Mechanical equipment in a New York school. F. G. McCann. *il Metal Work* 86:461-2, 529-30 O 13, 27 '16
- Methods for handling boilers in 100,000-kw. station of Boston Edison company. *il plan Elec W* 67:14-17 Ap 8 '16
- Modern boiler-house. W. W. Lackie. *Sci Am S* 82:171 S 9 '16
- Moxey plant remodeled. T. Wilson. *il plan Power* 42:348-50 D 21 '15
- Philip Carey boiler plant. T. Wilson. *il diag Power* 44:232-3 Ag 15 '16
- Pulverized fuel for stationary boilers on the Missouri, Kansas & Texas. *il Ry Mech Eng* 90:499-502 O '16; Same cond. *Ry Age* 61:549-51 S 29 '16
- Remodeling a boiler plant increases efficiency. *il Power* 43:217-18 F 15 '16
- Smoke abatement at a Dayton power plant. C. C. Moore. *il Power* 44:127-8 J 25 '16
- Standard oil boiler plants at Whiting, Ind. T. Wilson. *il diags Power* 43:499-504 Ap 11 '16
- Stoking small anthracite coal. W. O. Rogers. *il diags Power* 44:540-1 O 17 '16
- Three types of oil-fired boiler installations in Arizona. *il Eng & Min J* 102:787-8 O 28 '16
- See also Boilers; Steam plants

Manufacture

- Firms now manufacturing smokeless boilers. *Heat & Ven* 13:50 O '16

Records

- Device for recording data in a boiler plant. G. B. Willcox. *diag Am Soc M E J* 38:231-2 Mr '16
- Graphic record of poor header seats in sectional type boilers. *Int Marine Eng* 21:298 Je '16

Boiler plates

- Autogenous welding of boiler plates; abstract. *Am Soc M E J* 38:351 Ap '16

Testing

- Tests of autogenous welds of boiler plate. E. Höhn. *il diags Locomotive* 31:103-15, 118-23 O '16 (to be cont)

Boiler scale

- Chart showing fuel loss due to scale. C. Brossmann. *Power* 43:490 Ap 4 '16; Same. *Elec W* 67:828 Ap 8 '16
- Circulation carries scale into steam drum. R. Cederblom. *Power* 43:449 Mr 28 '16
- Experience with boiler graphite. F. B. Speace. *Am Gas Light J* 104:388 Je 19 '16
- Handling boilers to prevent corrosion and scale. A. H. Babcock. *Am Soc M E J* 38: 529-34 J 1 '16; Same cond. with supplement by F. E. Geibel. *Power* 42:910-13 D 28 '15; Same cond. *Metal Work* 84:798-800 D 24 '15; Abstract. *Eng M* 50:772 F '16; Excerpts. *Ry R* 59:126-8 J 12 '16; Discussion. *Am Soc M E J* 38:534-8 J 1 '16
- Internal treatment of boilers. G. Anderson. *Power* 42:890-2 D 28 '15
- Testing the efficiency of boiler scale preventatives. H. K. Benson and O. A. Houghen. *J Ind & Eng Chem* 8:435 My '16
- See also Feed water

Boiler setting. See Boilers—Setting

Boiler tests. See Boilers—Testing

Boiler tubes

- Behavior of boilers in service. J. C. McCabe. *il Power* 43:131-5 Ja 25 '16
- Heat transmission through boiler tubes. H. Kreisinger and J. F. Barkley. *diags* *il S Bur Mines Tech Pa* 114:1-33 '15; Abstract. F. G. Baender. *Sibley J* 30:202-4 Mr '16; Excerpt. *Elec W* 67:323-4 F 5 '16; Excerpts. *Engineer* 122:10 J 7 '16
- Leaky boiler tubes. *diags Int Marine Eng* 21: 385-6 Ag '16
- Recrystallization of boiler tubes. A. E. White and H. F. Wood. *Iron Age* 98:20-1 J 16 '16; Abstract. *Eng N* 76:88-9 J 13 '16
- Why boiler tubes need not be subject to coarsening. H. M. Howe. *Met & Chem Eng* 15:372 O 1 '16
- Why water tubes bend upward. C. H. Delany. *Power* 43:23 Ja 4 '16

Boiler water. See Feed water

Boilers

- Bettington boiler for powdered coal. R. T. Mawdesley. *diag Elec W* 67:610-11 Mr 11 '16
- Calculation of heating surface and horse power. *Metal Work* 86:489 O 20 '16
- Calculations for size of boiler. H. A. Everett. *Int Marine Eng* 20:567-8 D '15
- Can the formation of soot be prevented? J. Kissick. *il Power* 43:194-5 F 8 '16
- Chart showing causes of boiler defects according to frequency of occurrence. *Elec W* 67:108 My 13 '16
- Chimney draft's relation to boiler efficiency. E. R. Fish. *il diag Textile World* 51:4741+ N 4 '16; Same cond. *Power* 44:702 N 14 '16
- Design of fire tube boilers and steam drums. F. W. Dean. *diags Am Soc M E J* 38:5-7 Ja '16; Abstract. *Power* 42:878-9 D 21 '15; Discussion. *Am Soc M E J* 38:140 F '16
- Does it pay to carry an overload? *Factory* 17: 586+ N '16
- Draft gages on oil-burning boilers. F. H. Rosencranz. *diags Power* 43:147-8 F 1 '16
- Draft in fire-tube boilers. S. H. Viall. *diags Power* 43:509-11 Ap 11 '16
- Duplex internally fired boiler. *il Am Gas Light J* 104:333 My 22 '16
- Gas temperature in boiler pass. C. De Ved. *Power* 43:559 Ap 18 '16
- Helpful suggestions for the boiler room. *diags Int Marine Eng* 21:470-1 O '16
- How to utilize waste heat boilers. C. J. Bacon. *diags Iron Tr R* 57:1225-30 D 23 '15
- Invisible waste in the mill's boiler room. A. Walton. *Textile World* 51:4355 O 7 '16
- Kingsford boiler. *diags Power* 44:388 S 12 '16
- Master boiler makers' association 10th annual convention. *Ry Age* 60:1185-9 Je 2 '16; *Ry Mech Eng* 90:311-18 Je '16
- Modern development in the combustion of blast-furnace gas with special reference to the Bradshaw gas burner. K. Huessener. *il diags Am Inst Min E Bul* 110:443-74 F '16; Abstract. *Iron Age* 98:82-3 J 13 '16; Discussion. *Am Inst Min E Bul* 113:932-5 My '16
- Modern vertical boiler. J. T. Towlson. *diag Engineer* 122:164+, 280 Ag 25, S 29 '16
- Murray duplex boiler. *il Power* 44:55 J 11 '16
- N. E. L. A. report of committee on prime movers. *Elec Ry J* 47:999-1000 My 27 '16
- Power equipment for steam plants. R. L. Streeter. *il diags Ind Management* 52:355-71 D '16
- Practical discussion of the effects of combustion space upon boiler efficiency. *Int Marine Eng* 21:471-2 O '16
- Recent experiments in surface combustion. L. J. Bradford and C. D. Corwin. *diags Power* 42:855-7 D 21 '15
- Recent progress in boiler installations and some results of furnace investigations. W. A. Hoffman. *il diags Assn Eng Soc J* 55:149-69 N '15
- Regulation of water level in boilers. *Elec W* 68:911-12 N 4 '16
- Standard designs for scum funnel and surface blow-off connection and latches on flue door. F. G. McCann. *diags Metal Work* 84: 743 D 10 '15
- Standardization of boiler operating conditions. *Am Soc M E J* 38:1042-3 D '16
- Study of heat transmission in steam boilers. V. R. Gage. *diags Sibley J* 31:29-39 N '16

Boilers—Continued

- Talbot boiler. P. A. Talbot. *il diag Am Soc M E J* 38:991-4 D '16
- Three principal difficulties presented in the use of the surface combustion principle for the gas firing of boilers. N. Latta. *Am Gas Light J* 105:225-9 O 9 '16
- Transmission of heat in boilers. E. R. Hedrick and E. A. Fessenden. *Am Soc M E J* 38:619-22; Discussion. 622-5 Ag '16
- Trouble with steam boilers. *plan Metal Work* 85:258 F 18 '16
- Uniflow return-tubular boiler. *diags Power* 44:450 S 26 '16
- Use of low-grade fuel in Europe. R. H. Fernald. *diag U S Bur Mines Tech Pa* 123:33-5 '15; Excerpt (Bettington boiler for pulverized fuel). *Eng M* 50:771 F '16
- Ventilated front column in oil-burning boiler. C. V. Walker. *diag Power* 43:630-1 My 2 '16
- Visits of inspector Brown. J. E. Terman. *il Power* 42:782-3 D 7 '15
- What bags the boilers? R. McLaren. *Power* 44:566-7 O 17 '16
- What blisters the boilers? *Power* 44:173-4, 392-3, 428, 461-2 Ag 1, S 12-26 '16
- What draft gages tell. M. K. Bryan. *il Power* 42:899-900 D 28 '15

See also Blowoff tanks; Boiler cleaning; Boiler explosions; Boiler inspection; Boiler meters; Boiler plants; Boiler plates; Boiler scales; Boiler tubes; Draft gages; Feed water; Firing; Fuel; Fuel economy; Furnaces; Boiler; Grates; Injectors; Locomotive boilers; Pumps; Feed water; Safety valves; Staybolts; Steam; Steam engines; Stokers, Mechanical

Corrosion

- Boiler corrosion; abstract. J. C. B. Kershaw. *Am Soc M E J* 38:270-1 Mr '16
- Boiler corrosion by magnesium chloride; abstract. J. Scott. *Am Soc M E J* 38:1044 D '16
- Boiler steel and corrosion. G. L. Fowler. *il Ry Age* 60:960-3 Ap 28 '16
- Cumberland method of preventing corrosion. E. Cumberland. *diags Power* 44:184-5 Ag 1 '16
- Handling boilers to prevent corrosion and scale. A. H. Babcock. *Am Soc M E J* 38:529-34 Jl '16; Same cond. with supplement by F. E. Geibel. *Power* 42:910-13 D 28 '15; Same cond. *Metal Work* 84:798-800 D 24 '15; Abstract. *Eng M* 50:772 F '16; Excerpts. *Ry R* 59:126-8 Jl 22 '16; Discussion. *Am Soc M E J* 38:534-8 Jl '16
- Method of supporting zinc in boilers to prevent corrosion. *Elec W* 67:44 Ja 1 '16
- Recording the extent of corrosion in boiler plate. *diags Locomotive* 31:2-4 Ja '16

Electric heating

- Excess hydroelectric power; raising steam by electric heating. *il diag Elec W* 68:33 Jl 1 '16

Failures

- Behavior of boilers in service. J. C. McCabe. *il Power* 43:131-5 Ja 25 '16

See also Boiler explosions

Heads

See Boiler heads

Joints

- Analysis of riveted boiler joints. A. A. Adler. *Power* 44:432 S 19 '16
- Analysis of riveted boiler joints. S. F. Jeter. *diags Power* 44:281-2 Ag 22 '16
- Butt- and double-strap joint, double riveted. *diag Power* 44:365 S 5 '16
- Efficiency of unsymmetrical riveted joints. A. A. Adler. *Power* 44:430 S 19 '16
- Efficiency of unsymmetrical riveted joints. H. J. Vander Eb. *diags Power* 44:662-4 N 7 '16
- Efficiency of unsymmetrical riveted joints. R. N. Blackburn. *diags Power* 44:203-6, 696-7 Ag 8, N 14 '16; Abstract. *Am Soc M E J* 38:759-60 S '16
- Graphic analysis of riveted boiler joints. A. A. Adler. *diags Power* 44:159-62 Ag 1 '16

- Slip of riveted joints. H. J. Macintire. *Power* 44:23 Jl 4 '16

Laws and regulations

- A. S. M. E. code and the Massachusetts rules—a comparison. S. P. Stewart. *Power* 43:547-50, 582-5 Ap 18-25 '16
- Boiler code of American society of mechanical engineers. S. F. Jeter. *Locomotive* 31:66-72 Jl '16; Excerpts. *Textile World* 51:2107, 2109 Ag 29 '16; *Power* 43:634-5 My 2 '16
- California boiler orders. *Power* 44:635-6 O 31 '16
- California's boiler rules. *Power* 44:596 O 24 '16
- Louisiana stationary fireman's act annulled. A. L. H. Street. *Power* 43:79 Ja 18 '16
- Massachusetts board of boiler rules and A. S. M. E. code. G. A. Luck. *Power* 44:318 Ag 29 '16
- Massachusetts board of boiler rules hearing. *diags Power* 43:752-3 My 23 '16
- Massachusetts rules and the A. S. M. E. boiler code. *Power* 44:99-100 Jl 18 '16
- Range boiler law in Massachusetts. W. A. Bradford. *Metal Work* 85:683-4 My 19 '16
- Report of committee of the American boiler manufacturers' association on the A. S. M. E. code. *Iron Age* 97:1502 Je 22 '16
- Work of the boiler code committee. *diags Am Soc M E J* 38:42-6, 311-12, 726-8, 900-2, 1003-4 Ja, Ap, S, N-D '16

Manufacture

- Electricity in boiler and radiator manufacture. *il Elec R & W Elec'n* 68:1145-8 Je 24 '16

Rating

- Economical load on boilers. H. O'Neill. *Power* 43:762-4 My 30 '16
- Table of heating surface and steaming capacity. *Am Gas Light J* 104:61 Ja 24 '16

Repair

- Electric and oxy-acetylene welding. *Int Marine Eng* 20:564-5 D 15
- Obstacles to installing water-back overcome with oxy-acetylene weld. *diags Elec W* 67:720 Mr 25 '16
- Patching boilers. *diags Ry Mech Eng* 90:196 Ap '16
- Record of boiler repairs. C. B. Smith. *Power* 44:634 O 31 '16
- Symposium on welding as applied to boilers. *Power* 43:724-5 My 23 '16
- Tools for a water-tube boiler. D. A. Hampson. *il Power* 44:83 Jl 18 '16

Safety devices and measures

- Kilkenny combination fusible plug and safety valve. *il diag Ry R* 58:654 My 6 '16
- Prevents low water and overpressure. F. C. Perkins. *il Power* 43:511 Ap 11 '16
- Sudden cooling of boilers in cases of low water. J. C. Hawkins. *Power* 43:85-6 Ja 18 '16

See also Fusible plugs

Setting

- Benefits derived from steel casing for boiler setting in Arizona station. R. I. Elkin. *Elec W* 68:28 Jl 1 '16
- Boiler settings for smokeless combustion. O. Monnett. *diags Am Soc M E J* 38:633-6 Ag '16
- Boiler side-wall construction. O. C. Woolson. *diags Power* 44:632-3 O 31 '16
- Elements of smokeless furnace design. O. Monnett. *diags Heat & Ven* 13:17-24 Ja '16
- Examples of boiler-room economies. O. Monnett. *Power* 44:146-7 Jl 25 '16
- Holding rear arch brick. O. Thorp. *il Power* 44:598 O 24 '16
- New arch construction. *diags Textile World* 51:1873 Ap 15 '16
- Visits of inspector Brown. J. E. Terman. *diags Power* 42:850-2; 43:70-1 D 21 '15, Ja 18 '16

Testing

- Acceptance tests of B. & W. and Stirling boilers. L. A. Quayle. *il Power* 43:185-7 F 8 '16

Boilers—Testing —Continued

- Boiler performance at Boston woven hose and rubber co. C. B. Hudson. Power 43:228-9 F 15 '16
- Boiler-test results. W: Kent. Power 43:191-2 F 8 '16
- Boiler tests at various loads. T. Maynz. Power 42:240, 833-4 Ag 17, D 14 '15
- Burning coke breeze. il diag Power 44:2-4 JI 4 '16
- Cheapest fuel and most economical load. R. H. Karl. Power 42:792-4 D 7 '15
- Economy test of Lentz engine and boiler. G. C. Long. Power 44:180 Ag 1 '16
- Effect of soot on heat transmission. J. E. Bell. Power 44:129 JI 25 '16
- Evaporation corrected for superheat. R. T. Strohm. Power 43:659 My 9 '16
- Evaporation test with shavings. H. Kilday. diag Power 43:924 Je 27 '16
- Evaporation tests with different fuels. B. E. A. Borenzi. Power 43:780 My 30 '16
- Forced firing and slow combustion. S. Naylor. Metal Work 85:63 Ja 7 '16
- How oil burners help boilers over peak loads. il diag Elec W 68:758-9 O 14 '16
- Measuring the water used in power-plant tests. C: G. Richardson. il Power 43:640-3 My 9 '16
- Method of weighing water in boiler test. diag Metal Work 85:316 Mr 3 '16
- Oil fuel. E. H. Peabody. Power 44:208 Ag 8 '16
- Operation of boilers with balanced draft. R. I. Elkin. Elec W 68:522-3 S 9 '16
- Performance of an underfeed stoker installation. W. G. Claytor and S. S. Williams. il Elec W 67:375-6 F 12 '16
- Performance of boilers operating at over rating. Elec W 63:518-19 S 9 '16
- Rector extended-surface boiler. diags Power 43:619-21 My 2 '16
- Results of eight boiler tests. J. C. Long. Power 43:26 Ja 4 '16
- Test of a cast-iron sectional down-draft boiler. C. A. Fuller. Am Soc Heat & V E 21:126-9 '15; Same. Metal Work 83:282-3 F 19 '15; Same. Dom Eng 71:64-5 Ap 17 '15; Discussion. Am Soc Heat & V E 21:129-34 '15
- Test of Ward watertube boiler. S. M. Robinson. il Int Marine Eng 21:330-3 JI '16
- Testing of house-heating boilers. L. P. Breckenridge and D. B. Prentice. Am Soc M E J 38:861-4 N '16
- Testing plant for International boilers. il Heat & Ven 13:44-5 Mr '16
- Utilization of waste heat for steam-generating purposes. A. D. Pratt. diag Am Soc M E J 38:859-61 N '16

See also Flue gas—Analysis

Boilers, Heating

- Arrangement for maintaining even combustion in down-draft boilers. C: A. Fuller. diags Heat & Ven 13:22-3 O '16
- Burning soft coal without smoke; also combustion of coals in general. F: T. Oakes. il diag Heat & Ven 13:17-19 O '16
- Cracking of sections in cast iron heating boilers. Locomotive 31:18-19 Ja '16
- Development of the smokeless boiler. C: L. Collette. il diags Heat & Ven 13:13-16 O '16
- Heating-boiler failure. J. C. Hawkins. diags Power 44:761 N 28 '16
- Heating boilers for electric locomotives. il diags Elec Ry J 47:1080-4 Je 10 '16
- Nervous and uncertain water-lines in steam heating boilers. A. G. King. diags Dom Eng 77:104-6 O 28 '16
- Peerless down-draft boiler. il Heat & Ven 13:52-3 O '16
- Phelps single-grate smoke-consuming sectional boiler. il Heat & Ven 13:51 O '16
- Pierce down-draft boiler. il Heat & Ven 13:50 O '16
- Recent tendencies in the smokeless boiler field. A. G. Cripps. Heat & Ven 13:53 O '16
- Remedy for unsteady water line. Metal Work 85:285 F 25 '16
- Richardson smokeless down draft boiler. il Dom Eng 74:118 Ja 22 '16
- Seabury safety heating boiler. diag Heat & Ven 13:50-1 S '16
- Selecting boilers for house heating. A. G. King. Dom Eng 75:358-9 Je 17 '16

- Smith smokeless-furnace boiler. Heat & Ven 13:51-2 O '16
- Standard details for heating and ventilating work. F. G. McCann. diags Metal Work 86:113 JI 28 '16
- Test of a cast-iron sectional down-draft boiler. C: A. Fuller. Am Soc Heat & V E 21:126-9 '15; Same. Metal Work 83:282-3 F 19 '15; Same. Dom Eng 71:64-5 Ap 17 '15; Discussion. Am Soc Heat & V E 21:129-34 '15
- Test on a Molby down draft boiler. Heat & Ven 12:54-5 D '15
- Testing of house-heating boilers. L. P. Breckenridge and D. B. Prentice. Am Soc M E J 38:861-4 N '16
- Trouble with steam boiler. diags Metal Work 85:448 Mr 31 '16

Boilers, Locomotive. See Locomotive boilers**Boilers, Marine**

- Air supply to boiler-rooms on warships. R. W. Allen. Am Soc M E J 38:840 O '16
- Analysis of marine safety valves; with suggestions for repairs and improvements. E. F. Maas. diags Am Soc M E J 38:994-6 D '16
- Analyzing a marine steam plant. E. N. Percy. Int Marine Eng 21:386-8 Ag '16
- Dry steam in Scotch boilers—remarkable performance of the steamship Bristol. diags Int Marine Eng 21:205-7 Ap '16
- In what part of a Scotch boiler-should the feed water be discharged? Int Marine Eng 21:163 Mr '16
- Preservation of marine boilers. T: J. Rogers. Int Marine Eng 21:32-4 Ja '16
- Should the hydrostatic test pressure of one and one-half times the working pressure be applied to marine steam boilers annually? Int Marine Eng 21:341-2 JI '16
- S. S. Minnesota fitted with new boilers. il diags plant Int Marine Eng 21:492-4 N '16
- Successful installation of fire-tube superheater on a railroad tug. il Int Marine Eng 21:160-1 Mr '16
- See also Marine engineering; Marine engines

Boilers, Range

- Kitchen boilers as air storage reservoirs. Locomotive 31:48-51 Ap '16; Same. Metal Work 86:320-1 S 8 '16
- Range boiler exchange regulations. Metal Work 85:708+ My 26 '16
- Range boiler law in Massachusetts. W: A. Bradford. Metal Work 85:683-4 My 19 '16

Boilers, Water-tube

- Baffling causing fire-doors to burn. F. C. Torrance. diag Power 44:308-9 Ag 29 '16
- Bulged steam drum, on a water tube boiler. M. T. Glenn. diag Locomotive 31:78-9 JI '16
- Circulation in horizontal water tube boilers. P. A. Bancel. il diags Iron Tr R 59:951-6 N 9 '16; Same cond. Am Soc M E J 38:17-22 Ja '16; Discussion. 38:142-4 F '16
- Comparisons of British and American boiler design and operation. S. L. Pearce. Elec W 68:323-4 Ag 12 '16
- Connelly water-tube boiler. diag Power 44:243-4 Ag 15 '16
- Graphic record of poor header seats in sectional type boilers. Int Marine Eng 21:298 Je '16
- Heat transmission through boiler tubes. H: Kreisinger and J. F. Barkley. diags U S Bur Mines Tech Pa 114:1-33 '15; Abstract. F. G. Baender. Sibley J 30:202-4 Mr '16; Excerpt. Elec W 67:323-4 F 5 '16
- Horizontal and vertical baffling. S. H. Viall. diags Power 43:874-7 Je 20 '16
- Horizontal and vertical baffling. W. J. Manhire. diag Power 44:357-8 S 5 '16
- Large-unit boilers. C: Erith. il Power 43:448-9 Mr 28 '16
- Largest boilers for Ford co. J: P. Badenhausen. il diags Power 44:474-7 O 3 '16
- Rectangular pressure vessels. H. J. Vander Eb. Locomotive 30:164-9 Ap '15; Same. Mach 22:861-2 Je '16; Abstract. Am Soc M E J 38:598 JI '16
- Siller-Christians boiler. il diags Power 43:124-5 Ja 25 '16
- Siller-Christians boiler. W. D. Lewis. Power 43:449 Mr 28 '16

Boilers, Water-tube—Continued

- S. S. Minnesota fitted with new boilers. *il* diags plan *Int Marine Eng* 21:492-4 N '16
 Test of Ward watertube boiler. S. M. Robinson. *il* *Int Marine Eng* 21:330-3 J1 '16
 Unique navy boiler. F. C. Perkins. *il* *Power* 43:116 Ja 25 '16

Boiling points

- Boiling and condensing points of alcohol-water mixtures. P. N. Evans. *J Ind & Eng Chem* 8:260-2 Mr '16
 Boiling-point of aqueous solutions of nitric acid at different pressures. H. J. M. Creighton and H. G. Smith. *diag J Fr Inst* 130: 703-9 D '15

Boillot, Georges, 1886-1916

- Sketch. *por Automobile* 34:1079 Je 15 '16

Bolivia

See also Mines and mineral resources—Bolivia

Commerce

- American hardware in South America. *Sci Am* 115:425-6 N 4 '16
 Markets for American hardware in Chile and Bolivia. V. L. Havens. *U S Bur For & Dom Com misc ser* 41:159-73 '16
 Markets for machinery and machine tools in Peru, Bolivia, and Chile. J. A. Massel. *U S Bur For & Dom Com* 118:33-61 '16

Commercial policy

- Report on trade and tariffs. *U S Fed Tr Comm* p 188-204 '16

Bolivia cloth

- Bolivia cloth; analysis of weave and finish. *il* *Textile World* 51:4451+ O 14 '16

Bolts and nuts

- Arrow toggle bolts. *il* *Concrete* 9:167 N '16
 Ballou elongated nut for track bolts. *il* *diags* *Ry R* 57:800-1 D 18 '15
 Charts for estimating the strength of bolts. W. F. Fisher. *Power* 43:42-3 Ja 11 '16
 Correct position for gland. L. R. Hoffman. *il* *Power* 44:728 N 21 '16
 Efficient reclamation of bolts and nuts. E. T. Spidy. *il* *diags plan Ry Mech Eng* 90:33-4 Ja '16
 Fitting-up bolt with taper washer. *il* *Iron Age* 98:1062 N 9 '16
 Foundation-bolt casings for machinery. *diags* *Eng & Min J* 101:561 Mr 25 '16
 Lock nut without washers. *diags* *Iron Age* 98:931 O 26 '16
 Locknuts and locking devices; drawings. J. H. Van Deventer. *Power* 44:236-7, 266-7 Ag 15-22 '16
 Parker expansion bolts. *il* *Elec R & W Elec'n* 68:123 Ja 15 '16
 Shekleton nut lock. *il* *Ry Age* 60:510 Mr 17 '16
 Something new in toggles. *il* *Metal Work* 86: 327 S 8 '16
 Spring nut lock. *il* *Ry Mech Eng* 90:601-2 N '16
 Studs and nuts for jig work. R. F. Pohle. *tables Mach* 22:976-7 J1 '16
 Toggle bolt's holding power equal to strength of bolt. *il* *Eng Rec* 74:396 S 23 '16

See also Staybolts

Testing

- Bolted and lagscrewed joints in timber. H. D. Dewell. *Eng N* 76:796-7 O 26 '16
 Lateral bending resistance of metal bolts and lag screws; abstract. H. A. Thomas. *diags* *Am Soc M E J* 38:1038-9 D '16
 Tests of bolted joints in timber framing. H. D. Dewell. *il* *diags* *Eng N* 76:111-15 J1 20 '16
 Tests of track bolts and wrenches. E. Stimson. *il* *diags* *Iron Tr R* 59:625-7 S 28 '16

Bomb-proof cellars

- Bomb-proof cellars to provide shelter during aerial attacks. *diag* *Concrete* 8:198 My '16

Bonds

- Bond tables. S. Walton. *J Account* 22:319-22 O '16
 Contractor's bond. J. M. Wilson. *Good Roads* n s 11:235-7 Je 3 '16
 Simple amortization method. S. Walton. *J Account* 22:477-82 D '16

See also Debts, Public; Municipal bonds; Railroads—Securities

Bonds, Municipal. See Municipal bonds**Bonds, Rail. See Rail bonds****Bone patent. See Concrete, Reinforced—Patents****Bonus system**

- Bonus system in coal mining. *Coal Age* 10:815-16 N 11 '16
 Bonuses to workmen in French shops. L. Revillon. *Iron Age* 98:1234-5 N 30 '16
 Firemen's bonus successful. C. M. Rogers. *Power* 42:906 D 28 '15
 How a bonus system and steam-flow meter are used to maintain economical loads on boilers in Mineral Point, Wisconsin station. *Elec W* 67:322 F 5 '16
 How to increase the output with the present force. R. W. Higgins. *Eng M* 51:562-6 J1 '16
 Increased production. *Engineer* 122:419 N 10 '16
 Paying bonuses to indirect labor. *Iron Age* 97:366-70 F 10 '16

Book reviews

- Reviews of technical books. R. Fleming. *Eng N* 76:550 S 21 '16

Bookbinding

- Artificial leather for book binding. *Munic Eng* 51:33-4 J1 '16
 Binding—quarter-bound, cut flush. J. J. Pleger. *Inland Ptr* 58:221-2 N '16
 Bookbinding in printing establishments. J. J. Pleger. *il* *Inland Ptr* 57:369-70 Je '16
 Flexible-plant operation in a New York bindery. *il* *Elec W* 67:596-7 Mr 11 '16
 Handling repeat orders automatically. E. W. Palmer. *Factory* 16:227-9 Mr '16
 Imitation deckled edges; manifold work. J. J. Pleger. *il* *Inland Ptr* 57:657-8 Ag '16
 Printer as a bookbinder. J. J. Pleger. *il* *Inland Ptr* 57:537-8 J1 '16

See also Paste

Cost

- Little study in binding prices. B. Daniels. *Inland Ptr* 57:235 My '16

Bookbinding machinery

- How machinery is replacing the human element in book binding. G. T. Carliss. *il* *Sci Am* 114:513 My 13 '16

Bookkeeping

- Ascertainment of value and profits from books of account. J. A. McKenna. *J Account* 21: 192-205 Mr '16
 Back to single entry. R. O. Hall. *J Account* 22:196-204 S '16
 System of accounts for retail merchants. *U S Fed Tr Comm* 19p J1 15 '16; Same. *Dom Eng* 76:359-61, 393-5 S 9-16 '16; Same. *Metal Work* 86:564-6, 622-5 N 3, 17 '16

See also Accounting; Balance sheets; Cost accounting; Mine accounting

Booklets

- Reconstruction of a booklet. J. L. Frazier. *Inland Ptr* 56:497-500 Ja '16

Books and reading

- Economy in study. G. V. Dearborn. *Sci Am S* 81:330-1 My 20 '16

See also Printing; Title pages

Boosters

- Booster arrangement for lighting circuits. K. B. Humphrey. *diag Elec W* 67:772 Ap 1 '16

Borax

- Borax consolidated, ltd. report. *Eng & Min J* 101:549 Mr 25 '16
 World's production of borax. *Sci Am S* 80:389 D 18 '15

Borers (animals)

- Marine borers from wood preserver's standpoint. L. F. Shackell. *Ry Age* 60:508-10 Mr 17 '16

See also Lead borers

Boring (metal working, etc.). See Drilling and boring (metal working, etc.)**Boring machinery. See Drilling and boring machinery****Bornite**

- Flotation of bornite; abstract. H. W. Du Bois. *Met & Chem Eng* 14:326 Mr 15 '16
 Graphic intergrowth of bornite and chalcocite. A. F. Rogers. *pls Econ Geol* 11:582-93 Ag '16

Boron

Metallurgy of the rarer metals. J. W. Richards. *J Ind & Eng Chem* 8:738 Ag '16; Same. *Met & Chem Eng* 15:28-9 Jl 1 '16; Same. *Sci Am* 8 82:223 S 30 '16

Bosch magneto company

School for the service man. *il Horseless Age* 38:219 O 1 '16

Boston, Massachusetts

See also Forsyth dental infirmary

Lighting

Boston lighting contract considered by commission. *Elec R & W Elec'n* 68:747 Ap 29 '16

Operating costs of Boston incandescent street lamps. *Elec R & W Elec'n* 68:351 My 13 '16

Rapid transit

Boston profits by elevated railway station improvements. *il diag plans Elec Ry J* 48:258-63 Ag 12 '16

Construction of the Dorchester tunnels under Fort Point channel. A. A. Cohill. *il plan Boston Soc C E J* 3:179-88 My '16

Determining the actual length of ride. D. J. McGrath. *Elec Ry J* 47:595-8 Mr 25 '16

Encouragement in the Bay State decision. *Elec Ry J* 48:683 S 30 '16

Progress on the Boston subway. *il plan Ry R* 58:393-400 Mr 18 '16

Six-cent fare disallowed for Bay State. *Elec Ry J* 48:444-8 S 9 '16

See also Boston Elevated railway

Sewerage

Sewage pumping in Boston. *Munic J* 40:618-19 My 4 '16

South End sewer system of Boston. E. S. Dorr. *il diag plan Boston Soc C E J* 2:355-72 D '15; Abstract. *Eng N* 74:1155 D 16 '15; Excerpts. *Eng & Contr* 45:18-19 Ja 5 '16

Streets

Recommended pavements for Boston streets. *Eng N* 76:307 Ag 17 '16; Same. *Eng & Contr* 46:211 S 6 '16

Street traffic regulation in Boston. W. B. Conant. *Munic J* 40:199 F 10 '16

Boston & Maine railroad

Abstract of annual report for 1916. map *Ry Age* 61:684-6 O 20 '16

Abstract of the majority report of the board of directors. *Ry Age* 60:289-90 F 18 '16

Federal valuation of the Boston and Maine railroad. F. C. Shepherd. *Boston Soc C E J* 2:291-326 O '15; Same abr. *Eng Rec* 72:538-41 O 30 '15; Same abr. *Ry R* 57:665-7 N 20 '15; Discussion. *Boston Soc C E J* 3:71-6 F '16

Try state ownership of railways on the Boston & Maine. *Eng N* 76:467 S 7 '16

Boston Elevated railway

Boston Elevated completes pressure wood preserving plant. E. W. Bright. *il diag plans Elec Ry J* 48:1065-8 N 18 '16

Boston Elevated library; methods of developing and indexing the library and the duties of the librarian. *Elec Ry J* 46:1118-19 D 4 '15

Boston Elevated reports on safety. *diags Elec Ry J* 47:652-3 Ap 1 '16

Boston Elevated seeks financial relief. *Elec Ry J* 48:671-7 S 30 '16

Boston profits by elevated railway station improvements. *il diag plans Elec Ry J* 48:258-63 Ag 12 '16

Large-capacity units for Boston Elevated railway. *Elec Ry J* 47:463-4 Mr 4 '16

Boston society of civil engineers

Address at the annual meeting. C. R. Gow. *Boston Soc C E J* 3:125-34 Ap '16

Service for the society. E. M. Blake. *Boston Soc C E J* 3:171-7 Ap '16; Excerpt. *Eng N* 75:874-5 My 11 '16

Botanical chemistry

Chemical changes occurring during the ripening of the wild goose plum. J. S. McHargue. *Am Chem Soc J* 38:718-22 Mr '16

Chemical composition of alfalfa as affected by stage of maturity, mechanical losses, and condition of drying. C. O. Swanson and W. L. Latshaw. *J Ind & Eng Chem* 8:726-9 Ag '16

Determination of phosphorus in plant materials. A. W. Christie. *J Ind & Eng Chem* 8:511 Je '16

Inner life of some common plants. P. Q. Keegan. *Sci Am* 8 81:98-9 F 12 '16

Notes on plant chemistry. P. Q. Keegan. *Sci Am* 8 81:319-20 My 13 '16

Botany

See also Bacteriology; Botanical chemistry; Sap; Trees; also Kapok; Tannins

China

Plants from China; results of the first plant introduction expedition. *Sci Am* 8 81:345 My 27 '16

Botany, Medical

Ancient botany of the Zuni Indians. M. C. Stevenson. *Sci Am* 8 82:197 S 23 '16

Growing of drug plants in the United States. L. W. Arny. *Sci Am* 8 82:350-1 N 25 '16

Trees in medicine. J. Foote. *il Am For* 22:648-53 N '16

Bottles

Manufacture of bottles. *il Sci Am* 8 82:360 D 2 '16

Boulder county, Colorado

Boulder county tungsten district, Colo. H. J. Wolf and P. P. Barbour. flow sheet *il Eng & Min J* 102:165-9 Jl 22 '16

Bowling alleys

Bowling alley lighting. R. F. Pierce. *diags Am Gas Light J* 104:33-5 Ja 17 '16

Box cars. See Freight cars**Boxes**

Machine for testing wooden packing boxes, American society for testing materials. *Ry R* 57:22-3 Jl 1 '16

Tote box of the stacking type. *il Iron Age* 98:927 O 26 '16; *Iron Tr R* 59:1046 N 23 '16

What science is doing to the packing box. *il Sci Am* 115:330 O 7 '16

Boyle's law

Deviation of natural gas from Boyle's law. R. F. Earhart and S. S. Wyer. *il diags Am Soc M E J* 38:695-9; Discussion. 700-8 S '16

Boys

Food consumption of adolescent boys. *Sci Am* 8 82:251 O 14 '16

Boys' clubs

Roxbury boys' clubs, Roxbury, Mass. *il plans Brickb* 25:21-2 Ja '16

Bracing

Defective bracing. *diag Bldg Age* 38:57 Ap '16

Bradstreet, John S.

John S. Bradstreet—citizen of Minneapolis. E. H. Hewitt. *il Am Inst Arch J* 4:424-7 O '16

Braids

Size of braids. *il Textile World* 51:3457+ Ag 5 '16

Brain

Nitrogenous constituents of brain lecithin. J. E. Darrah and C. G. MacArthur. *Am Chem Soc J* 38:922-30 Ap '16

See also Cephalin

Brake beams

Ajax third point support. *diag Ry Mech Eng* 90:156-7 Mr '16

Brake beam straightening press. E. F. Lickey. *diags Ry Mech Eng* 90:195-6 Ap '16

Brake show and brake beam equipment; report of committee of Master car builders' association. *diags Ry R* 58:869-71 Je 17 '16

Fourth vote on standard brake beam. *Ry R* 59:84-5 Jl 15 '16

Brake locks. See Automobiles—Brake locks**Brake rigging**

Brake lever strut for slack adjusters. *diag Elec Ry J* 48:738 O 7 '16

Clasp brakes for heavy passenger equipment cars. T. L. Burton. *il diags Ry Mech Eng* 90:581-4 N '16; Same cond. *Am Soc M E J* 38:883-6 N '16

Foundation brake gear. C. Page. *Ry Mech Eng* 90:82 F '16

Manual slack adjuster. *diags Ry R* 59:948 N 19 '15; *Ry Age (Mech ed)* 89:644 D '15

Slack adjusters for any type of truck. plan *Elec Ry J* 48:690 S 30 '16

Brake rigging—Continued

Specifications for freight car brake installations. J. S. W. Frahm. Ry R 58:203-3 F 5 '16

See also Brakes

Brake shoes

Change from half to full flanged brakeshoes. R. E. Hewitt. Elec Ry J 46:1223 D 18 '15
Design of passenger equipment; brake shoe suspension. V. W. Zilen. Ry Mech Eng 90: 189-91 Ap '16

Brakes

Brakes for hydraulic turbines. R. E. Horton. Eng N 76:181 JI 27 '16
Cause of slid flat wheels. W. V. Turner. diags Ry Mech Eng 90:247-8 My '16
Control equipment, with regenerative electric braking feature, on the locomotives of the Chicago, Milwaukee & St. Paul railway. R. Stearns. II diags Gen Elec R 19:948-51 N '16
Convenient water brake. C. H. Berry. Power 43:889-90 Je 20 '16
Convenient water brake. T. Hall. diags Power 43:764-5 My 30 '16
Equipment of the safety car. diags Elec Ry J 48:405-6 S 2 '16
Friction clutch brake improved. II diag Elec Ry J 48:325-6 Ag 19 '16
Goit's electro-pneumatic brake system. Am Soc M E J 38:599 JI '16
Hand brake and slack adjuster. diags Elec Ry J 47:1100 Je 10 '16
Installation of a large magnetic clutch-brake, Boston woven hose and rubber co. C. B. Ferguson. II Elec R & W Elec'n 68:125-6 Ja 15 '16; Same. Met & Chem Eng 14:60-1 Ja 1 '16; Same cond. Elec W 67:153-4 Ja 15 '16
Manufacturing standard brake levers. W. P. Hobson. diags Ry Mech Eng 90:425 Ag '16
Mechanical and electrical features of the C., M. & St. P. locomotives. II Elec Ry J 48: 892-4 O 21 '16
New high power hand brake. diags Elec Ry J 47:574 Mr 18 '16
Recent developments in train brake engineering. W. S. Dudley. Ry Age 60:159-62 Ja 28 '16
Regenerative braking tests on the St. Paul. Elec Ry J 47:84 Ja 8 '16
Regenerative braking with induction motors; abstract. H. G. Jungk. diag Elec W 68:631-2 S 23 '16
Regenerative electric braking. J. J. Linebaugh. II Gen Elec R 19:967-72 N '16; Abstract. Eng N 76:902-3 N 9 '16
Variable-load brake. Elec Ry J 47:737 Ap 15 '16
Vital relation of train control to the value of steam and electric railway properties. W. V. Turner. diags J Fr Inst 182:419-62, 613-24 O-N '16

See also Air brakes; Brake beams; Brake rigging; Brake shoes; Locomotive brakes; Ships—Brakes

Brakes, Automobile

Air brake for motor trucks. II Sci Am 113:544 D 18 '15
Brake-actuating mechanism and rebound checks. M. C. Krarup. Automobile 34:770-1 Ap 27 '16
Brake design not up to par. A. L. Clayden. Automobile 35:524-6 S 28 '16
Carsafe water-cooled non-freezing brake. diag Automobile 35:884 N 23 '16
Detroit six has cable brakes. II Automobile 34:498-9 Mr 16 '16
Electric automobile brake made by Hartford suspension co. II Elec W 67:393 F 12 '16
Gatrell vacuum brake. II Horseless Age 36:405 N 1 '15
Getting proper brake action with Hotchkiss drive. A. L. Clayden. diag Automobile 34: 713-14 Ap 20 '16
Hartford electric brake for automobiles. II Elec R & W Elec'n 68:211-12 Ja 29 '16
Many factors in brake design. J. Younger. Automobile 35:929-31 N 30 '16
Vacuum brake for automobiles. II diags Automobile 35:774-5 N 2 '16; Abstract. Am Soc M E J 38:1031-2 D '16
Working out the Rolls Royce brake. C. J. Booth. diags Automobile 34:185-7 Ja 27 '16

Bramante, Donato D'Anghelo, 1444-1514

Portrait. Brickb 25:26a F '16

Brandeis, Louis Dembitz, 1856-

Clifford Thorne in opposition to Mr. Brandeis. Ry R 58:238-9 F 12 '16

Brass

Cadmium myth? G. C. Stone. II Eng & Min J 102:909-10 N 18 '16
Condenser tube troubles. A. E. White. Iron Age 98:22-3 JI 6 '16; Abstract (Cracking of brass tubes and its cure). Eng N 76:87 JI 13 '16
Corrosion of a solid solution 70/30 brass. W. E. Gibbs. Sci Am S 82:58 JI 22 '16
Effect of corrosion on the ductility and strength of brass. P. D. Merica. Met & Chem Eng 15:321-4 S 15 '16; Abstract. Am Soc M E J 38:930 N '16
Failure of structural brasses. P. D. Merica and R. W. Woodward. Metal Ind n s 13:459-61, 495-8 N-D '15; Conclusions. Eng & Min J 100:640 O 16 '15
Grinding brass ashes in the conical ball mill. A. F. Taggart and R. W. Young. II Am Inst Min E Bul 110:435-42 F '16; Same. Iron Tr R 58:440-3 F 24 '16; Same. Foundry 44:102-5 Mr '16
How brass ashes are economically reclaimed. A. F. Taggart. flow sheet Foundry 44:428-31 O '16; Same cond. Iron Age 98:818-19 O 12 '16; Excerpts. Met & Chem Eng 15:651 D 1 '16
Inspection of bronze and brass. E. Jonson. Metal Ind n s 14:424-6 O '16; Excerpts. Iron Age 98:678-9 S 21 '16
Production of etched metal goods. W. Voss. Metal Ind n s 14:74-6 F '16
Recrystallization after plastic deformation. H. M. Howe. Am Inst Min E Bul 118:1851-60 O '16; Same cond. Iron Tr R 59:1051-3+ N 23 '16
Recrystallization of cold-worked alpha brass on annealing. C. H. Mathewson and A. Phillips. II Am Inst Min E Bul 109:1-50 Ja '16; Abstract. Am Soc M E J 38:183-4 F '16; Discussion. Am Inst Min E Bul 113:987-99 My '16
Seasoning cracking and self-annealing of brass; abstract. W. Arthur. Met & Chem Eng 15:651-2 D 1 '16
Strong yellow brass. Y. B. Founder. Foundry 44:159-60 Ap '16
Unreliability of brass and bronze. A. D. Flinn. Iron Age 96:1292-3 D 2 '15
Waste and abuse of brass and bronze. R. R. Clarke. Ry Mech Eng 90:361-2 JI '16
See also Alloys; Brass founding; Brass work; Muntz metal

Finishing

Lay-out and operation of a bright dip. G. B. Morris. diags Mach 22:685 Ap '16

Brass cleaning

Cleaning brass mountings on electrical apparatus. H. E. Weightman. Elec R & W Elec'n 68:294 F 12 '16

Brass founding

Brass foundry. E. A. Barnes. Met & Chem Eng 15:578-9 N 15 '16; Abstract. Iron Age 98:677 S 21 '16
Chemist and the brass-founder. R. T. Rolfe. II Metal Ind n s 14:373-4, 468-9 S, N '16 (to be cont)
Difficulties in making brass die-castings. Mach 22:410-11 Ja '16
Foundry problems. W. J. Reardon. II diags Metal Ind n s 14:155-8 Ap '16
Making airtight alloy castings. S. D. Sleeth. Iron Tr R 59:569-70 S 21 '16; Same. Met & Chem Eng 15:352-3 S 15 '16; Same. Foundry 44:480-1 N '16; Same cond. Mach 23:132 O '16
Making thin wall ornamental brass castings. R. S. B. Wallace. II diag Foundry 44:474-6 N '16
Making yellow brass ingots from yellow turnings. T. Adams. Metal Ind n s 14:387 S '16
Manufacture of cartridge brass. C. R. Barton. diags Eng & Min J 101:975-81 Je 3 '16

Cost

Foundry costs of brass castings. W. H. Parry. Metal Ind n s 14:120 Mr '16

Brass foundries

How the sanitation of brass foundries is promoted by good ventilation. *il* Iron Tr R 59: 374-7 Ag 24 '16

Manufacture of admiralty gun metal in England. H. S. Primrose. *il* plans Metal Ind n s 14:339-42 Ag '16

Phenomenal growth of a brass manufacturing company; development of the Crane co., Chicago. *il* Metal Ind n s 14:12 Ja '16

Sanitation of the brass foundry promoted by proper ventilation. *il* Foundry 44:97-100 Mr '16

When does it pay to install brass foundries? W. L. Churchill. Metal Ind n s 14:67 F '16

See also Brass founding

Laboratories

Chemistry for the brass foundryman. E. P. Later. Foundry 44:223-5, 281-4, 317-19, 364-6, 434-6-7, 469-72 Je-N '16

Brass pipes. *See* Pipes, Brass**Brass work**

Manufacture of brass cartridge cases. G. C. Holder. *il* Metal Ind n s 14:147-50 Ap '16

Modern equipment for the brass-working machine shop. F. W. Blair. *il* Metal Ind n s 14:22-4 Ja '16

Brazil**Commerce**

Brazil; automobile and general trade conditions. D. Beecroft. map Automobile 35:514-17, 558-61, 600-3 S 28-O 12 '16

Lumber markets of the east coast of South America. R. E. Simmons. *il* U S Bur For & Dom Com 112:65-121 '16

Commercial policy

Report on trade and tariffs. U S Fed Tr Comm p 30-79 '16

Industries and resources

Brazilian opportunities and the Brazil railway. F. E. Lawrence. *il* map Eng N 75:345-50 F 24 '16

High grade manganese ores of Brazil. J. T. Singewald, jr., and B. Miller. *il* map Iron Age 97:417-20 F 17 '16

Mining industry of Brazil. B. L. Miller and J. T. Singewald, jr. *il* map Eng & Min J 101:759-62 Ap 29 '16

Productive capacity of Brazil. A. C. de Soveral. Am Ind 16:12 Ja '16

Rapid tunneling in Brazil. J. C. Balcomb. *il* diags Eng N 75:321-6 My 18 '16

See also Gold mines and mining—Brazil; Mines and mineral resources—Brazil

Brazing

Dry borax for brazing. G. N. Garrison. Mach 22:423 Ja '16

Bread

Determination and distribution of moisture in bread. H. L. Wessling. *il* J Ind & Eng Chem 8:1021-2 N '16

Digestibility of bread; salivary digestion in vitro. J. C. Blake. Am Chem Soc J 38:1245-60 Je '16

Modern bread-baking. *il* Sci Am 114:282-3 Mr 11 '16

Use of certain yeast nutriment in bread-making. H. A. Kohman and others. *il* J Ind & Eng Chem 8:781-9 S '16

Using blood in bread. Sci Am 114:172 F 12 '16

See also Bakers and bakeries; Flour

Breakwaters

Air breakwater put to severe test. *il* Sci Am 114:403 Ap 15 '16

Brasher air breakwater. *il* diags Engineer 121:414-15, 478 My 19, Je 9 '16; Same (pt. 2). Heat & Ven 13:50 N '16

Reinforced concrete breakwater. D. C. Findlay. *il* diags Concrete 8:66 F '16

See also Jetties

Brick. *See* Bricks**Brick construction**

Efflorescence on brick work. A. R. Cornwell. Arch Rec 40:495 N '16

Failure of Roxbury school building apparently caused by faulty brick piers; abstracts. S. E. Thompson. *il* Eng Rec 74:294-6 S 2 '16; Concrete 9:116-17 O '16; Eng N 76:262-5 Ag 10 '16

Hydrated lime and faulty brick piers. B. Nagy. Eng Rec 74:539 O 28 '16

Interlocking channel brick for walls of attractive design. *il* Sci Am 114:668 Je 24 '16

Use of clay products in domestic building construction. A. H. Kimball. Sci Am S 81: 363 Je 3 '16

Brick pavements. *See* Pavements, Brick

Brick roads. *See* Roads, Brick

Bricklaying

Building segmental brick arches. W. H. Hefelfinger. diags Bldg Age 38:39-41 O; 39-40 D '16

Points for apprentice bricklayers. W. H. Hefelfinger. diags Bldg Age 38:25-7 Ap; 39-41 Ag '16

Brickmaking

Electric drive in clay product manufacture. N. G. Meade. *il* Elec W 67:1470-2 Je 24 '16

Electricity in brick manufacturing plants. *il* Elec R & W Elec'n 68:60-4 Ja 8 '16

Making money by stopping the smoke. K. Hawkins. *il* Factory 17:30-2 J1 '16

Safety in brick and tile manufacturing. *il* Am Ind 17:supl-4 O '16

Bricks

See also Bricklaying; Brickmaking; Concrete bricks; Fire brick; Pavements, Brick; Roads, Brick

Testing

Comparative tests of wire-cut-lug and repressed paving brick. W. A. Goss. Eng & Contr 46:8-11 J1 5 '16

Method of marking paving brick for identification in making rattler tests. C. A. Baughman. diags Eng & Contr 44:470 D 22 '15

Method of marking paving brick for identification in making rattler tests. F. L. Roman. diags Eng & Contr 45:80 Ja 26 '16

Rattler test for paving brick. Eng & Contr 45: 198 F 23 '16

Rattler test for paving bricks. F. L. Roman. Eng & Contr 45:329 Ap 5 '16

Bridge abutments. *See* Bridges—Abutments

Bridge accidents

Bridge wrecked by runaway car derailed at curve, Cleveland, O. *il* diags Eng N 76:718-19 O 12 '16

Iron span falls when post is struck by runaway car; West Third street bridge, Cleveland. *il* Eng Rec 74:483 O 14 '16

See also Bridge failures; Bridges—Fires

Bridge approaches

Box concrete retaining wall on Western Pacific Ry. J. H. Knowles. *il* diags Eng N 75:633-5 Ap 6 '16

Making the earthwork approach to Columbia river bridge. E. E. Howard. *il* diags Eng N 75:145-9 Ja 27 '16

Bridge bearings

Holler shoe for bridges prevents tipping. diags Eng N 76:647-8 O 5 '16

Bridge contracts

City of Dayton bought bridge materials in advance. Eng N 75:375 F 24 '16

Bridge design

Advantage of a combined use of tables and formulas in the computation of bridge stresses. R. P. V. Marquardsen. diags W Soc E J 21:55-72 Ja '16

Appearance of Brooklyn-Brighton viaduct, Cleveland, improved by special features. *il* diags Eng Rec 73:832-3 Je 24 '16

Bascule bridge of short span over the Ecorse river. *il* diags Eng N 75:260-1 F 10 '16

Bond and shear in reinforced footing offsets. C. Older. diags Eng N 76:18-19 J1 6 '16

Bridge carrying highway and irrigation flume. diags Eng N 75:735 Ap 20 '16

Bridge over the Arkansas river near Pine Bluff. *il* diags Ry Age 60:53-5 Ja 14 '16

Calgary's Center street bridge. W. E. Harndenburgh. *il* diags Munic J 40:543-4 Ap 20 '16

Charing Cross bridge. diags Engineer 121:550-1; 122:8-9 Je 30-J1 7 '16

Complex grade changes in a highway bridge on Herron avenue, Pittsburgh. *il* diags Eng N 76:1034-5 N 30 '16

Data on watery areas required for highway bridges. W. S. Gearhart. Eng & Contr 44:461-2 D 15 '15

Bridge design—Continued

Design and construction of a through-arch reinforced concrete bridge at Kristianstad, Sweden, with comparative data on the design of the Lyons Falls bridge in New York. A. M. Wolf. diags Eng & Contr 43:457-9 My 17 '16

Design features of a reinforced concrete and steel viaduct between Portland and South Portland, Maine. diags Eng & Contr 45:368-70 Ap 19 '16

Design features of the Dewey suspension bridge across the Grand river, near Dewey, Utah. diags Eng & Contr 44:429-31 D 1 '15

Design of a curved chord reinforced concrete highway bridge at Lyons Falls, N. Y. diags Eng & Contr 45:160-1 F 16 '16

Design of a railway pontoon bridge. H. J. Hansen. pls W Soc E J 21:7-25; Discussion. 25-32 Ja 16

Design of a 242-ft. arch span over the Pit river in Shasta county, California. diags Eng & Contr 44:459-60 D 15 '15

Design of the Massachusetts street bridge over the Kansas river at Lawrence, Kansas. diags Eng & Contr 45:35-9 Ja 12 '16

Esthetics of highway bridge design. A. H. Fuller. Good Roads n s 12:161 O 7 '16

4,700 ft. concrete bridge between Charlotte Harbor and Punta Gorda, Fla. diags Eng & Contr 46:455 N 22 '16

Full-load secondaries were eliminated at Quebec. J. Mayer. Eng N 76:517 S 14 '16

Great variety in design reduces cost of new Portland harbor bridge. il diags Eng Rec 73:319-22 Mr 4 '16

High masonry arch viaduct in France designed as a two-level structure. il diags Eng Rec 72:768 D 18 '15

Highest arch highway viaduct of striking appearance economically constructed. il diags Eng Rec 73:210-12 F 12 '16

Hopple street viaduct, Cincinnati, is built with cantilever beams of arch form. E. K. Ruth. il diags Eng Rec 74:381-4 S 23 '16

I-beam and concrete highway bridges in Adams county, Indiana. il diags Eng & Contr 46:462 N 22 '16

K-truss bridge of Santa Fe across Arkansas river. diags Eng N 76:104-6 JI 20 '16

Minor problems in a highway bridge design. L. M. Hastings. diags Boston Soc C E J 3:59-64 F '16

New bridge over the Ribble at Preston. il diag map Engineer 121:147-8, 154 F 18 '16

New Mississippi river bridge at Memphis. il diags Ry Age 61:645-9 O 13 '16

New type of bridge for ditch crossings. diag Concrete 9:59 Ag '16

Old iron bridge, Dixon, Ill., damaged by electric car. il diags Eng N 76:357 Ag 24 '16

Operating machinery of the Willamette river drawbridge, near Portland, Oregon. B. B. Carter. il diags W Soc E J 21:529-55; Discussion. 556-64 S '16

Pine Bluff, Ark., vertical-lift span suspended by chains. il diags Eng N 75:402-6 Mr 2 '16

Pitt river reinforced-concrete arch in California. il diags plans Eng N 75:1209-11 Je 29 '16

Plate-girder cantilever bridge. A. C. Hayden. il diags Eng N 76:266-7 Ag 10 '16

Plea for up-to-date bridgework in the United Kingdom. R. H. White. Engineer 122:392 N 3 '16

Proposed motor-truck loads for highway bridges. O. W. Childs. Eng N 76:898-9 N 9 '16

Q street bridge at Washington. il diags Eng N 75:1-3 Ja 6 '16

Railway bridge over Ohio at Metropolis, Ill. diags Eng N 76:151-4 JI 27 '16

Reinforced-concrete street viaduct at Denver, Colo. il diags Eng N 75:166-9 Ja 27 '16

Replacing water-main bridge with concrete arch in Washington, D. C. il diags Eng N 74:153-4 D 16 '15

Reversible falls, St. John river, steel-arch bridge of 565-ft. span. il diags Eng N 75:777-9 Ap 27 '16

Rural highway bridge of strange design. H. Blood. diags Eng N 76:317 Ag 17 '16

Safe design depends on validity of assumptions underlying theoretical analysis. W. M. Wilson. Eng Rec 74:506-7 O 21 '16

Simple type of concrete bridge for grade crossings. C. W. Martin. il diags Eng N 75:408-10 Mr 2 '16

Slab-deck concrete railway bridge over highway. diags Eng N 76:1002-3 N 23 '16

Special design of log truss bridge. diags Eng & Contr 46:450 N 22 '16

Standard plans for I-beam and concrete bridges. il diags Eng N 76:471 S 7 '16

Standard pony-truss bridges for Michigan highway. C. V. Dewart. il diag Eng N 76:990 N 23 '16

Steel cantilever ribs balanced over main piers to form arched concrete spans. il diags Eng Rec 73:677-9 My 20 '16

Steel I-beams and concrete highway bridges. diags Eng N 75:1183 Je 22 '16

Steel spans and concrete arches combined to form unusual bridge at Ninetieth street, Cleveland. il diags Eng Rec 74:190-3 Ag 12 '16

Test of new type reinforced-concrete bridge. il diags Eng N 76:620-1 S 28 '16

Tests of large bridge struts reveal new facts. J. H. Griffith and J. G. Bragg. il Eng N 76:49-52 JI 13 '16

Theory of displacements applied to analysis of suspension bridges. C. S. Whitney. Eng Rec 74:234-5 Ag 19 '16

Things we do not know about structural engineering. W. M. Wilson. Eng & Contr 46:362-4 O 25 '16

Three-hinged arch girders with vertical ends provide barge canal clearance. il diags Eng Rec 72:702-3 D 4 '15

Truss deflections accurately determined by angle changes and elastic weights. D. B. Steinman. diags Eng Rec 73:644-6, 680-2 My 13-20 '16

Wisconsin using standardized bridge-abutment plans. diags Eng Rec 72:688 D 4 '15

See also Arches; Bridge bearings; Bridges—Load; Elevated railroads

Bridge failures

Accident to the Quebec bridge. diags Engineer 122:322 O 13 '16

Another Quebec bridge disaster. Eng Rec 74:338-9 S 16 '16

Breakage of casting of rocker-joint bearing responsible for Quebec bridge disaster. il diags Eng Rec 74:370-1 S 23 '16

Bridge failure in Spokane. il Elec Ry J 47:163-4 Ja 22 '16

Bridge washouts in the desert. il Eng N 75:873-4 My 11 '16

Careless work causes concrete bridge failure at Independence, Ore. il Eng N 76:672 O 5 '16

Cause of the Quebec bridge disaster. il diags Ry Age 61:487-92 S 22 '16

Collapse of bridge at Spokane not yet explained. il diag Eng N 75:92-3 Ja 13 '16

Collapse of the Quebec bridge. il Ry Age 61:456 S 15 '16

Computing the stresses in the Quebec rocker casting. diags Eng N 76:650-3 O 5 '16

Disaster at the Quebec bridge. diag Ry R 59:367-8 S 16 '16

Eye-bar failure at low stress causes bridge collapse in Spokane. Eng N 74:1289-90 D 30 '15

Failure of Penistone viaduct. il Engineer 121:135 F 11 '16

Full evidence on the fall of the Quebec bridge span. il diags Eng N 76:572-5 S 21 '16; Same cond. Ry R 59:408-11 S 23 '16

Further light on the Quebec bridge disaster. il diag Sci Am 115:298-9+ S 30 '16

Kansas river bridge falsework collapse. il Eng N 75:245 F 3 '16

Overturning stringers cause highway-bridge failure. D. A. Thomas. il Eng N 76:455 S 7 '16

Poor concrete in columns caused failure of bridge at Independence, Ore. C. B. McCullough. il Eng Rec 74:597 N 11 '16

Prominent bridge engineers express regret at Quebec bridge accident. Eng N 76:622 S 28 '16

Quebec bridge accident. il diag Engineer 122:232-3, 236 S 15 '16

Quebec bridge accident. H. C. Baird; R. S. Foulds. plan Eng N 76:857 N 2 '16

Quebec bridge accident and stress analysis. Eng N 76:661-2 O 5 '16

Bridge failures—Continued

- Quebec bridge castings. Iron Age 98:823 O 12 '16
- Quebec bridge disaster. il diags Sci Am 115:282-3 S 23 '16
- Quebec bridge disaster. E; Godfrey. diags Eng & Contr 46:356-7 O 25 '16
- Quebec bridge disaster charged to casting. il Iron Age 98:638-9 S 21 '16
- Quebec bridge suspended span falls into river in hoisting. il Eng N 76:524-8 S 14 '16
- Ruptured floor-beam stirrup drops bridge floor. Eng N 75:1091 Je 8 '16
- Rusted pony truss collapses at Johnstown, Penn. il diags Eng N 75:622-4 Mr 30 '16
- Steel fatigue at low stress due to flaws. J. W. Cunningham. Eng N 75:133 Ja 20 '16
- Story of the Quebec bridge disaster. H. F. Stratton. il Iron Tr R 59:685-8 O 5 '16
- Suspended span of new Quebec bridge falls into river while being hoisted. il diags Eng Rec 74:363-6 S 16 '16
- Three-hinged concrete bridge, San Diego, fails by undermining. diags Eng N 75:292 F 10 '16
- Washout at abutment drops train from bridge. il diags Eng N 75:1200 Je 22 '16
- What caused the Quebec failure? W. K. Palmer. Eng Rec 74:480 O 14 '16
- What lesson does the second Quebec bridge disaster teach? Eng & Contr 46:269-70 S 27 '16
- What was the cause of the initial failure at the Quebec bridge? diags Eng Rec 74:432-3 O 7 '16
- Wind damages highway bridge over Kankakee river. C. Older. il Eng Rec 74:344-5 S 16 '16; Same cond. Eng N 76:638-9 O 5 '16
- Wrecked bridge span 260 feet long replaced in 13 days by girders on pile piers. il Eng Rec 74:170-1 Ag 5 '16

See also Bridges—Damages from floods, etc.; Bridges—Fires

Bridge inspection

- Connecticut company bridge records. W. R. Dunham, Jr. Elec Ry J 47:412-13 F 26 '16
- Painting and maintaining steel highway bridges. G; Hogarth. Eng & Contr 45:373-5 Ap 19 '16

Bridge moving

- Bridge spans moved bodily to a new site. il Eng Rec 72:751 D 18 '15

See also Bridge raising

Bridge painting

- Painting and maintaining steel highway bridges. G; Hogarth. Eng & Contr 45:373-5 Ap 19 '16
- Red-lead finishing coats. Eng N 75:995-6 My 25 '16

Bridge patents. See Bridges—Patents**Bridge raising**

- Raising a three-span bridge under traffic. il diags Ry Age 60:218-20 F 18 '16
- Raising settled bent of heavy concrete viaduct. il diags Eng N 76:221 Ag 3 '16
- Raising three single track, 240-ft., pin connected truss bridge spans 6 ft. under traffic. il diags Eng & Contr 46:84-5 JI 26 '16
- Rigid jacking hitch made with pin slings for raising bridge. R. C. Hardman. il Eng Rec 73:493 Ap 8 '16
- Steel truss spans raised more than 6 feet without interruption to traffic. il diags Eng Rec 73:807-3 Je 17 '16

Bridge removal. See Bridges—Removal**Bridge shops**

- Bridge building in the shop; how the gigantic members of the Quebec bridge are fabricated. il Sci Am 115:192-3 Ag 26 '16

Bridges

- Bridge building in New Zealand. O. Johnson. il Sci Am S 82:152-3 S 2 '16
- Bridge building in 1915. Engineer 121:16-17 Ja 7 '16
- Bridges—1916; tabulation. Munic Eng 50:156-7 Ap '16
- Bridges of Spain. A. Byne. il Arch Rec 40:434-44 N '16
- Cleveland bridge problem and a proposed solution. G; B. Ford. il Am Inst Arch J 4:395-6 S '16
- County-bridge curiosities. il Eng N 76:754-5 O 19 '16

- How the forest service bridges the more remote stream crossings. il diags Eng Rec 73:485-6 Ap 8 '16
- Primitive timber bridge in the Vale of Cashmere. il Eng N 76:965 N 23 '16
- Record-breaking bridge work in 1915. Eng Rec 73:8 Ja 1 '16
- Semi-floating highway bridge across Castaic creek. il diags Eng Rec 74:172 Ag 5 '16
- Some of the world's largest and most notable bridges. il Sci Am 113:559-61+ D 25 '15
- Study of grade crossing elimination in cities. C. N. Bainbridge. il diags W Soc E J 20:634-51 O '15

See also Bridge design; Bridge failures; Bridge moving; Culverts; Drawbridges; Elevated railroads; Girders; Graphic statics; Pontoon bridges; Strains and stresses; Trestles; Trusses

Abutments

- Building concrete forms for small bridge abutments and piers. J. C. Worrell. Eng & Contr 46:83-4 JI 26 '16
- Combining a bridge abutment with a culvert. I. W. Harrison. diags Eng N 75:172 Ja 27 '16
- Cost of piles vs. increased abutment depth. Eng N 76:270 Ag 10 '16
- Skew abutments laid out without a transit. diags Eng Rec 72:720 D 11 '15
- Standard concrete abutments for Michigan bridges. C. V. Dewart. il diags Eng N 75:738-9 Ap 20 '16
- Wisconsin using standardized bridge-abutment plans. diags Eng Rec 72:688 D 4 '15

Approaches

See Bridge approaches

Bearings

See Bridge bearings

Cost

- Cost and details of construction of a steel highway bridge, McLennan co., Tex. W; C. Davidson. il diags Eng & Contr 46:365-8 O 25 '16
- Cost of I-beam highway bridges in Boone county, Iowa. diags Eng & Contr 46:182-3 Ag 23 '16
- How steel prices affect cost of Minnesota bridge work. Eng Rec 73:745 Je 3 '16
- Study of grade crossing elimination in cities. C. N. Bainbridge. il diags W Soc E J 20:639-51 O '15; Excerpt. Eng Rec 71:770 Je 19 '15

Damages from floods, etc.

- Eight plate-girder spans over Gila river washed out. il map Eng N 75:792-3 Ap 27 '16
- Fishing for 60-ft. girders washed out in flood. E. D. Clabaugh. il Eng N 75:1189-90 Je 22 '16
- High water undermines bridge abutments at Alpena, Mich. J. McNeil. il diags Eng N 75:724-5 Ap 13 '16
- One span of Memphis bridge falsework washed out. Eng N 74:1291; 75:43 D 30 '15-Ja 6 '16
- Wind damages highway bridge over Kankakee river. C. Older. il Eng Rec 74:344-5 S 16 '16; Same cond. Eng N 76:638-9 O 5 '16

Design

See Bridge design

Erection

- Building a plate-girder bridge with a locomotive crane at Miamisburg, Ohio. il Eng N 74:1179-80 D 16 '15
- Details of travelers and jacks used in erection of Hell Gate arch span. C. S. Whitney. Eng & Contr 45:35 Ja 12 '16
- Detroit-Superior 591-foot steel arch successfully swung by toggle adjustment. il Eng Rec 72:790-1 D 25 '15
- Difficult falsework erection for 242-ft. concrete arch over Pit river. il diags Eng N 75:50-1 Ja 13 '16
- Erecting a bascule bridge. diags Eng N 75:29-30 Ja 6 '16
- Erecting a truss bridge with a locomotive crane. C. M. McVay. il Ry Age 60:899 Ap 21 '16
- Erecting highway bridges under traffic; Michigan. il Eng N 76:798-9 O 26 '16

Bridges—Erection—Continued

- Erecting long plate girders by tower traveler. il Eng N 75:370-2 F 24 '16
- Erection of an arch on suspended centering of reinforced concrete. il diags Engineer 121: 132, 131 F 11 '16; Same cond. Eng Rec 73: 389-90 Mr 18 '16
- Erection of Old Trails bridge over Colorado river. J. A. Sourwine. il diags Eng N 75: 1040-3 Je 1 '16
- Erection of Quebec bridge—programme for season 1916. diags Engineer 121:496-7 Je 16 '16
- Erection of Quebec bridge suspended span. A. J. Meyers. il diag Eng N 75:522-4 S 14 '16
- Erection of the south cantilever arm of the new Quebec bridge. diags Engineer 122: 363-4, 387-8 O 27-N 3 '16
- Erection of the suspended span new Quebec bridge. G. V. Davies and N. C. McMath. il diag Eng & Contr 46:276-8 S 27 '16
- Erection progress on the Quebec bridge. A. J. Meyers. il diags Ry Age 61:275-7 Ag 18 '16
- Erection progress on the Quebec bridge. H. P. Borden. Eng & Contr 45:196-7 F 23 '16
- Four-span railway bridge over Deerfield river rolled into place. il diag Eng N 75:840-1 My 4 '16
- Frames on flat cars erect railroad girder bridges. C. L. Ketcham. il Eng Rec 73:622 My 6 '16
- Further light on the Quebec bridge disaster. il diags Sci Am 115:298-9+ S 30 '16
- Girder bridge replaces truss over fast express tracks. il diags Eng Rec 73:383-4 Mr 18 '16
- Hell Gate bridge built by aid of telephones. il Elec R & W Elec'n 67:1158-9 D 25 '15
- Hell Gate bridge, New York. il diags map Engineer 120:495-7 N 26 '15
- Methods and equipment used in erection of Hell Gate arch over East river, New York city. W. J. Parsons. il diag Eng & Contr 45: 77-80 Ja 26 '16
- Moving and placing American railway draw-bridges by means of barges. il diag Engineer 120:520-1, 530 D 3 '15
- New Mississippi river bridge at Memphis. il diags Ry Age 61:645-9 O 13 '16
- New Quebec bridge. A. J. Meyers. il diag Sci Am 114:480-1+ My 6 '16
- Novel method of erection adopted in raising longest highway arch span at Topock, Ariz. il diags Eng Rec 74:580-1 N 11 '16
- One span of Memphis bridge falsework washed out. Eng N 74:1291; 75:43 D 30 '15-Ja 6 '16
- Progress on the erection of the new Quebec bridge. H. P. Borden. il Ry Age 59:1189-91 D 24 '15
- Quebec bridge disaster. il diags Sci Am 115: 282-3 S 23 '16
- Quebec bridge erection; progress in 1915. H. P. Borden. il Eng N 75:20-2 Ja 6 '16
- Quebec suspended-span hoisting details completed. A. J. Meyers. il diags Eng N 76:420-5 Ag 31 '16
- Replacing timber bridge with steel-girder spans. il Eng N 75:994-5 My 25 '16
- Revolutionary methods used to float and hoist center span of Quebec bridge. il diags Eng Rec 74:372-6 S 23 '16
- Season's work on the Quebec bridge. A. J. Meyers. il diags Ry Age 60:1143-5 My 26 '16
- South cantilever arm of Quebec bridge completed. A. J. Meyers. il diags Eng N 76: 298-305 Ag 17 '16
- Special steel and timber erection tower places heavy plate girders. il Eng Rec 73:354-5 Mr 11 '16
- Thrust of steel arch adjusted by end jacking. R. Kramer. diags Eng N 75:372 F 24 '16
- Viaduct 170 feet high erected without falsework by special steel struts. il diag Eng Rec 74:618-19 N 18 '16

See also Bridges—Reconstruction

Fires

- Creosoted timber floor fire racks Missouri bridge. il Eng N 76:670-1 O 5 '16
- Fire wrecks bridge over Missouri river. il Eng Rec 74:453, 477 O 7-14 '16

Heat from burning timber floor warps steel of bridge over Missouri river at St. Charles, Mo. il Eng Rec 74:477 O 14 '16

Floors

- Ballasted timber floor for the Sibley, Mo., bridge. diags Eng N 74:1156-7 D 16 '15
- Bridge floors. A. H. Fuller. il Good Roads n s 11:246 Je 3 '16
- Broken track stringers in bascule bridge lead to proposed new floor design. F. H. Avery. il diags Eng Rec 73:14-16 Ja 1 '16
- Distribution of loads on highway bridges with wooden floors. Eng & Contr 45:92 Ja 26 '16
- Gravel cover on bridge floors must be carefully spread. Eng N 76:330 Ag 17 '16
- Gravel covers on concrete bridge floors. F. H. Frankland. il Eng N 76:904-5 N 9 '16
- Heating materials for bridge paving in cold weather. C. B. Freeman. Eng & Contr 46: 275 S 27 '16
- Highway bridge floor is light and durable. E. E. Brandow. diag Eng Rec 73:746-7 Je 3 '16
- Highway bridge floors. C. M. Spofford. il diags Eng Soc W Pa 31:727-79; Discussion. 780-826 D '15
- Light wood floor for bridges. il diag Eng N 75:543 Mr 23 '16
- Pavement construction on Queensboro bridge, New York city. il diag Eng & Contr 45:591-2 Je 28 '16
- Queensboro bridge floor strengthened by adding stiffeners to buckle plates. il diag Eng Rec 73:670 My 20 '16
- Repaying a Milwaukee viaduct. il Munic J 41:124 Ag 3 '16
- Shallow railway floor on canal bascule bridge, Syracuse, N. Y. A. G. Hayden. il diags Eng N 76:545-7 S 21 '16
- Solid floors for through girder span. diags Ry Age 61:149-50 Ji 28 '16
- Test of concrete floor I-beam road bridge, Minnesota standards. diag Eng & Contr 46: 181-2 Ag 23 '16
- Vitrified tile underfloor protection for concrete bridges. diag Eng & Contr 46:182 Ag 23 '16
- Why put a gravel cover on the concrete floor of a bridge? Eng N 76:468-9 S 7 '16
- Wood floor construction for bascule bridges. diag Eng N 76:220-1 Ag 3 '16

Foundations and piers

- Bridge piers built quickly by effective plant. il Eng N 76:899 N 9 '16
- Building concrete piers for Sciotoville bridge. il plan Eng N 75:418-19 Mr 2 '16
- Capping old bridge piers under railway traffic. il diags Eng N 76:703-4 O 12 '16
- Central bridge at Lawrence is built from four separate mixing plants. E. K. Cortright. il plan Eng Rec 74:415-17 S 30 '16
- Concrete railway trestles. diags Eng N 75:203 F 3 '16
- Construction progress on the Bloor street viaduct, Toronto, Canada. Eng & Contr 45:280-1 Mr 22 '16
- Deep bridge substructure, of the Interstate bridge, designed to reduce work under water, finished month ahead of time. F. M. Cortelyou. il diags plan Eng Rec 74:36-9 Ji 8 '16
- Design and construction of the substructure for a three-track trunnion bascule bridge in Chicago, Ill. il diags Eng & Contr 45:188-90 F 23 '16
- Foundation work on the Metropolis bridge. il diags Ry Age 61:399-402 S 8 '16
- Foundations for Dayton bridge finished in four months despite four floods. il Eng Rec 73:548-9 Ap 22 '16
- Large bridge pier construction using steel forms. il Eng & Contr 46:90-1 Ji 26 '16
- Little Scioto viaduct founded on clay, piles and rock. H. B. Watters. diags Eng N 75:174 Ja 27 '16
- Methods and cost of constructing a small bridge pier in the Potomac river. E. Vandevanter. il diag Eng & Contr 45:474-6 My 24 '16
- Railroad bridge at Milton, Pa., piers built both ways from central plant on island. il Eng Rec 73:676-7 My 20 '16

Bridges—Foundations and piers—Continued

Sinking a cylinder pier by open dredging. *il* Eng N 74:1274 D 30 '15

See also Bridges—Abutments; Concrete piling; Piles and pile driving

Inspection

See Bridge inspection

Load

Distribution of loads on highway bridges with wooden floors. Eng & Contr 45:92 Ja 26 '16

Highway bridge floors. C. M. Spofford. *il* diags Eng Soc W Pa 31:727-46; Discussion. 780-826 D '15

Snow load for highway bridges. *il* Eng & Contr 45:409-10 My 3 '16

Wheel-load and impact charts for railway bridges. D. B. Steinman. Eng N 75:1173-6 Je 22 '16

See also Bridge design

Painting

See Bridge painting

Patents

Colorado district court rules against Luten patents. R. E. Lewis. Eng Rec 72:726 D 11 '15

Patent for arch reinforcement declared valid. *il* Eng Rec 73:274-5 F 26 '16

Thacher bridge patent loses in Iowa district court; decision of M. J. Wade. Eng N 76:621 S 28 '16

Reconstruction

Charing Cross bridge. *il* Eng Engineer 121:550-1; 122:8-9 Je 30-Jl 7 '16

Cheap devices used in reconstructing truss bridges eliminate costly centering. E. J. Doyle. diags Eng Rec 74:52-4 Jl 8 '16

New Susquehanna river bridge at Harrisburg. *il* diags Ry Age 60:501-3 Mr 17 '16

Reconstruction of Allegheny river bridge begun. *il* Eng Rec 73:744 Je 3 '16

Reconstruction of Mississippi river bridge at Keokuk. *il* diags Eng N 75:690-3 Ap 13 '16

Reconstruction of notable large bridges. Eng N 76:92 Jl 13 '16

Reconstruction of the Keokuk bridge. *il* diags Ry Age 61:97-100 Jl 21 '16

Reconstruction of the Ohio connecting bridge. *il* diags Ry Age 60:311-14 F 18 '16

Strengthening the Cairo bridge on Illinois Central R. R. diags Eng N 75:448-9 Mr 9 '16

Susquehanna concrete viaduct built in halves. *il* diags Eng N 75:537-40 Mr 23 '16

Trusses changed for girders without falsework. C. L. Ketcham. *il* Eng Rec 74:422 S 30 '16

Wrecked bridge span 260 feet long replaced in 13 days by girders on pile piers. *il* Eng Rec 74:170-1 Ag 5 '16

See also Bridge moving; Bridges—Repair

Removal

Abandoned bridge difficult to destroy. J. H. Weatherford. *il* *il* Eng Rec 74:132-4 Jl 29 '16

Demolishing old steel bridge and handling heavy girders. S. O. Steere. *il* Eng N 76:316 Ag 17 '16

Half of long steel viaduct at Cleveland wrecked in seven days. *il* Eng Rec 73:326-7 Mr 4 '16

See also Bridge moving

Repair

Bridge-track repairs, Sixth street bridge, Pittsburgh. diags Eng N 75:612 Mr 30 '16

Concrete arch rib supported while section is cut out. *il* Eng Rec 74:225 Ag 19 '16

Jacking concrete-slab bridge into place after failure. *il* Eng N 76:900 N 9 '16

Jacking up Riverside Drive viaduct; buckling columns give trouble. *il* diags Eng N 76:869-73 N 9 '16

Old iron bridge, Dixon, Ill., damaged by electric car. *il* diags Eng N 76:357 Ag 24 '16

Settled columns of big New York viaduct raised. *il* Eng Rec 74:553 N 4 '16

Strengthening an alley bridge. Eng N 76:659 O 5 '16

See also Bridges—Reconstruction

Specifications

Howe truss highway bridge with composite chord. diags Eng N 76:559-60 S 21 '16

Log truss highway bridges, Utah road standards. diags Eng N 75:1238 Je 29 '16

Utah road engineers adopt short-span standard. E. R. Morgan. Eng Rec 74:175 Ag 5 '16

Bridges, Arched

Arch centers suspended from old plate girders. *il* *il* Eng N 76:816-7 N 2 '16

Arch viaduct of nickel steel spanning 285 ft. *il* diags Eng N 75:734-5 Ap 20 '16

Bensalem avenue concrete arch bridge, Philadelphia, Pa. J. Jones. *il* *il* Eng & Contr 46:91-3 Jl 26 '16

Bloor-street viaduct, Toronto. *il* map Engineer 122:394, 398-9 N 3 '16

Design of a 242-ft. arch span over the Pit river in Shasta county, California. diags Eng & Contr 44:459-60 D 15 '15

Detroit-Superior 591-foot steel arch successfully swung by toggle adjustment. *il* Eng Rec 72:790-1 D 25 '15

Economical section for short span, reinforced arches carrying light highway loadings. C. B. McCullough. *il* Eng & Contr 46:93-4 Jl 26 '16

Erection of an arch on suspended centering of reinforced concrete. *il* diags Engineer 121:134 F 11 '16; Same cond. Eng Rec 73:389-90 Mr 18 '16

Erection of Old Trails bridge over Colorado river. J. A. Sourwine. *il* diags Eng N 75:1040-3 Je 1 '16

Four-span steel-arch bridge at Indianapolis, Ind. *il* diags Eng N 75:596-8 Mr 30 '16

Graphical analysis of arches with fixed ends greatly simplified. C. S. Whitney. Eng Rec 72:324-6 S 11 '15; Correction. 72:798 D 25 '15

Hell Gate bridge, New York. *il* diags map Engineer 120:495-7 N 26 '15

Hell Gate bridge of the New York connecting railroad. Arch & Bldg 48:170-2, pl 60-1 N '16

Highest arch highway viaduct of striking appearance economically constructed near Akron, Ohio. *il* diags Eng Rec 73:210-12 F 12 '16

Little plant required to complete 4000-foot concrete railroad bridge at Harrisburg, Pa. *il* *il* Eng Rec 74:340-2 S 16 '16

Long-span steel-arch bridge across Colorado river. *il* Eng N 75:672-3 Ap 6 '16

Masonry arch makes a cheap highway bridge. R. Fletcher. *il* Eng N 76:368 Ag 24 '16

Methods and equipment used in erection of Hell Gate arch over East river, New York city. W. J. Parsons. *il* *il* Eng & Contr 45:77-80 Ja 26 '16

New bridge over the Ribble at Preston. *il* *il* map Engineer 121:147-8, 154 F 18 '16

Novel method of erection adopted in raising longest highway arch span at Topock, Ariz. *il* diags Eng Rec 74:580-1 N 11 '16

Pennsylvania railroad bridge at Phoenixville. *il* Ry Age 60:1321-2 Je 16 '16

Pitt river reinforced-concrete arch in California. *il* diags plans Eng N 75:1209-11 Je 29 '16

Reinforced-concrete arch has masonry facing. *il* *il* Eng Rec 74:327 S 9 '16

Reversible falls, St. John river, steel-arch bridge of 565-ft. span. *il* diags Eng N 75:777-9 Ap 27 '16

Theory and tests presented for design of sand boxes to lower arch centers. F. P. McKibben. *il* *il* Eng Rec 74:530-2 O 28 '16

Three-hinge arch highway bridge Rochester, N. H., built in place at low cost. E. N. Sheffield. *il* diags Concrete 9:45-6 Ag '16

Thrust of steel arch adjusted by end jacking. R. Kramer. diags Eng N 75:372 F 24 '16

2,223-ft. concrete-arch bridge built on reverse curve. A. M. Richter. *il* diags plans Eng N 74:1268-72 D 30 '15

Bridges, Bascule

Bascule-bridge end lock. diags Eng N 75:395 Mr 2 '16

Bascule bridge for highway service in California. *il* Eng Rec 74:647 N 25 '16

Bridges, Bascule—Continued

- Bascule bridge of Chicago & Northwestern Ry. replaces old swing bridge at Chicago. il Eng N 76:284 Ag 10 '16
- Bascule bridge of short span over the Ecorse river. il diags Eng N 75:260-1 F 10 '16
- Bascule bridge, Port Arthur, Tex., survives blow from steamer. il Eng Rec 74:229 Ag 19 '16
- Concrete counterweights for bascule bridge. il Concrete 9:117 O '16
- Controller for bascule bridge. diag Elec R & W Elec'n 68:1086-7 Je 10 '16
- Defective bascule bridge. Eng N 76:743 O 19 '16
- Design and construction of the substructure for a three-track trunnion bascule bridge in Chicago, Ill. il diags Eng & Contr 45:188-90 F 23 '16
- Double-deck trunnion bascule bridge put into use. il Eng Rec 73:418 Mr 25 '16
- Erecting a bascule bridge. diag Eng N 75:29-30 Ja 6 '16
- First double deck bascule bridge, Chicago. Munic J 40:374 Mr 16 '16
- Installation of cables and control switches for motors operating bascule bridge over ship canal. J. G. Koppel. il Elec W 68:27 Jl 1 '16
- Lubricated trunnion pin for bascule bridge. C. P. Wiweke. diags Eng N 75:803-4 Ap 27 '16
- New bridge of the Chicago & Northwestern Ry. over the north branch of the Chicago river. il diags plan Ry R 59:203-6 Ag 12 '16
- New three-track bascule bridge at Chicago. il diags Ry Age 61:233-6 Ag 11 '16
- Putting a bascule bridge into service over the Chicago river at Lake street. diags Eng N 75:756 Ap 20 '16
- Renewing a drawbridge across the Chicago river. il Eng N 74:1267 D 30 '15
- Shallow railway floor on canal bascule bridge, Syracuse, N. Y. A. G. Hayden. il diags Eng N 76:545-7 S 21 '16
- Steel cantilever ribs balanced over main piers to form arched concrete spans. il diags Eng Rec 73:677-9 My 20 '16
- Temporary bascule bridge for construction purposes. H. DaCamara. il diags Eng N 76:31-2 Jl 6 '16
- Temporary wooden bascule bridge. W. F. Schaphorst. il Eng & Contr 46:369 O 25 '16
- Wood floor construction for bascule bridges. diag Eng N 76:220-1 Ag 3 '16

Bridges, Cantilever

- Another Quebec bridge disaster. Eng Rec 74:338-9 S 16 '16
- Breakage of casting of rocker-joint bearing responsible for Quebec bridge disaster. il diags Eng Rec 74:370-1 S 23 '16
- Cantilever bridge at Cernavoda, Roumania. il diags Eng N 76:861-2 N 2 '16
- Cause of the Quebec bridge disaster. il diags Ry Age 61:487-92 S 22 '16
- Erection of Quebec bridge—programme for season 1916. diags Engineer 121:496-7 Je 16 '16
- Erection of Quebec bridge suspended span. A. J. Meyers. il diag Eng N 76:522-4 S 14 '16
- Erection of the south cantilever arm of the new Quebec bridge. diags Engineer 122:363-4, 387-8 O 27-N 3 '16
- Erection of the suspended span new Quebec bridge. G. V. Davies and N. C. McMath. il diag Eng & Contr 46:276-8 S 27 '16
- Erection progress on the Quebec bridge. A. J. Meyers. il diags Ry Age 61:275-7 Ag 18 '16
- Full evidence on the fall of the Quebec bridge span. il diags Eng N 76:572-5 S 21 '16; Same cond. Ry R 59:408-11 S 23 '16
- Great variety in design reduces cost of new Portland harbor bridge. il diags Eng Rec 73:319-22 Mr 4 '16
- New Quebec bridge. A. J. Meyers. il diag Sci Am 114:480-1+ My 6 '16
- Plate-girder cantilever bridge. A. G. Hayden. il diags Eng N 76:266-7 Ag 10 '16
- Quebec bridge. H. A. Pidgeon. il Sibley J 31:39-42 N '16
- Quebec bridge accident. il diag Engineer 122:232-3, 236 S 15 '16
- Quebec bridge erection; progress in 1915. H. P. Borden. il Eng N 75:20-2 Ja 6 '16

- Quebec bridge suspended span falls into river in hoisting. il Eng N 76:524-8 S 14 '16
- Quebec suspended-span hoisting details completed. A. J. Meyers. il diags Eng N 76:420-5 Ag 31 '16
- Revolutionary methods used to float and hoist center span of Quebec bridge. il diags Eng Rec 74:372-6 S 23 '16
- South cantilever arm of Quebec bridge completed. A. J. Meyers. il diags Eng N 76:298-305 Ag 17 '16
- Story of the Quebec bridge disaster. H. F. Stratton. il Iron Tr R 59:685-8 O 5 '16
- Suspended span of new Quebec bridge falls into river while being hoisted. il diags Eng Rec 74:363-6 S 16 '16

Bridges, Concrete

- Abandoned bridge difficult to destroy. J. H. Weatherford. il diag Eng Rec 74:132-4 Jl 29 '16
- Appearance of Brooklyn-Brighton viaduct, Cleveland, improved by special features. il diags Eng Rec 73:832-3 Je 24 '16
- Arch centers suspended from old plate girders. il diag Eng N 76:846-7 N 2 '16
- Arroyo Seco reinforced concrete bridge near Pasadena, Cal. C. A. Byers. il Concrete 8:203-5 My '16
- Bensalem avenue concrete arch bridge, Philadelphia, Pa. J. Jones. il diag Eng & Contr 46:91-3 Jl 26 '16
- Bridge near Rock Rapids, Ia., considered the oldest concrete arch bridge in America. il Concrete 8:268 Je '16
- Brooklyn-Brighton concrete viaduct completed. W. H. Baker. il Eng N 75:489-90 Mr 16 '16
- Building second half of the Susquehanna bridge. il Eng N 76:764-6 O 19 '16
- Calgary's Center street bridge. W. E. Harndenburgh. il diag Munic J 40:543-4 Ap 20 '16
- Central bridge at Lawrence is built from four separate mixing plants. E. K. Cortright. il plan Eng Rec 74:415-17 S 30 '16
- Chattanooga bridge fallwork swept away by flood. Eng N 74:1291 D 30 '15
- Chicago track-elevation bridges of Illinois Central R. R. diags Eng N 75:600-3 Mr 30 '16
- Completion of Calcasieu river bridge; Lake Charles, La. il Eng N 76:865 N 2 '16
- Concrete arch rib supported while section is cut out. diag Eng Rec 74:225 Ag 19 '16
- Concrete bridge completed from suspended forms. F. R. Goodman. il diag Eng N 76:786-7 O 26 '16
- Concrete bridges and viaducts of Cincinnati, Ohio. F. L. Raschig. il Eng & Contr 45:263-6 Mr 15 '16
- Concrete side-hill viaduct for a brick highway. diags Eng N 76:352 Ag 24 '16
- Concrete viaduct versus fill for street elevation. diags Eng N 75:1176-7 Je 22 '16
- Concrete viaduct with special expansion provisions. C. W. Martin. il diags Eng N 75:1078-80 Je 8 '16
- Concreting plant for construction of Rosalia, Wash., bridges of C. M. & St. P. Ry. plan Eng & Contr 46:455-6 N 22 '16
- Construction features of a reinforced concrete bridge at Ft. Wayne, Ind. C. B. Freeman. il diags Concrete 9:77-81 S '16
- Construction methods on viaducts of the Lackawanna railroad over Tunkhannock and Martins creeks. C. W. Simpson. il Munic Eng 50:94-8 Mr '16
- Construction of two concrete arch bridges at Rosalia, Wash. J. F. Pinson. il diags Ry R 59:647-8 N 11 '16
- Construction of Washington street arch bridge at Indianapolis. plan Eng N 74:1142-4 D 9 '15
- Corpus Christi causeway contains 2300 feet of reinforced-concrete girder spans. T. Bartlett. il diags map Eng Rec 73:390-2 Mr 18 '16
- Design and construction of a high-level reinforced concrete highway bridge across the Skurusund, in Sweden. il Eng & Contr 45:343-4 Ap 12 '16
- Design and construction of a through-arch reinforced concrete bridge at Kristianstad, Sweden, with comparative data on the design of the Lyons Falls bridge in New York. A. M. Wolf. diags Eng & Contr 45:457-9 My 17 '16

Bridges, Concrete—Continued

Design of a curved chord reinforced concrete highway bridge at Lyons Falls, N. Y. diags Eng & Contr 15:100-1 F 16 '16

Design of a 242-ft. arch span over the Pit river in Shasta county, California. diags Eng & Contr 44:459-60 D 15 '15

Design of Bensalem avenue bridge, Philadelphia, governed by architectural requirements of site. J. Jones. il diags Eng Rec 74:504-5 O 21 '16

Design of the Massachusetts street bridge over the Kansas river at Lawrence, Kansas. diags Eng & Contr 45:35-9 Ja 12 '16

Difficult falsework erection for 242-ft. concrete arch over the Pit river. il diags Eng N 75:50-1 Ja 13 '16

Economical section for short span, reinforced arches carrying light highway loadings. C. B. McCullough. diag Eng & Contr 46:93-4 Jl 26 '16

Erection of an arch on suspended centering of reinforced concrete. il diags Engineer 121: 122, 131 F 11 '16; Same cond. Eng Rec 73: 38-90 Mr 18 '16

Experience and costs in making concrete-bridge units. H. M. Holmes. il diags Eng N 75:825-7 My 4 '16

Flat-slab highway bridges; Ohio standards. Eng N 75:947 My 18 '16

Flat slab used at Lackawanna South Orange crossing. il diags plan Eng N 75:526-9 Mr 16 '16

4,700 ft. concrete bridge between Charlotte Harbor and Punta Gorda, Fla. diags Eng & Contr 46:455 N 22 '16

Half-mile double-deck concrete bridge in Cleveland, Ohio. il Sci Am 114:403 Ap 15 '16

Highest arch highway viaduct of striking appearance economically constructed near Akron, Ohio. il diags Eng Rec 73:210-12 F 12 '16

Hopple street viaduct, Cincinnati, is built with cantilever beams of arch form. E. K. Ruth. il diags Eng Rec 74:381-4 S 23 '16

Is the three-hinge concrete bridge a good type for moderate spans? il Concrete 9:132-3 O '16

Lackawanna improvements at South Orange. A. B. Cohen. il diag plan Ry Age 60:683-7 Mr 24 '16

Little plant required to complete 4000-foot concrete railroad bridge at Harrisburg, Pa. il diag Eng Rec 74:340-2 S 16 '16

Methods and equipment used in constructing a reinforced concrete viaduct at Danville, Ill. N. B. Garver. il diag Eng & Contr 45:134-5 F 9 '16

Mission bridge in Canadian Northwest designed as adornment to its location. J. F. Greene. il Eng Rec 74:205-6 Ag 12 '16

Motor trucks distribute materials within the job. il plan Eng Rec 74:347-9 S 16 '16

New Susquehanna river bridge at Harrisburg. il diags Ry Age 60:501-3 Mr 17 '16

New type of bridge for ditch crossings. diag Concrete 9:59 Ag '16

Novel construction features of Cincinnati concrete bridge. E. K. Ruth. il Eng N 75:659-61 - Ap 6 '16

Novel reinforced concrete sewer viaduct. F. C. Perkins. il Eng & Contr 46:410 N 8 '16

Oldest concrete bridge, Golden Gate park, San Francisco. il Concrete 9:69-70 Ag '16

160-ft. wide bridge, Des Moines, Ia., and some notes on the construction plant. il Eng & Contr 46:451 N 22 '16

Overflow bridges—types of overflow bridges used in McLennan county, Texas. W. C. Davidson. il diags Eng & Contr 46:176-80 Ag 23 '16

Pitt river reinforced-concrete arch in California. il diags plans Eng N 75:1209-11 Je 29 '16

Pressed-steel floor forms left in place on two-mile bridge at St. Louis eliminate carpenters. il Eng Rec 73:760-2 Je 10 '16

Q street bridge at Washington. il diags Eng N 75:1-3 Ja 6 '16

Queens boulevard viaduct, New York elevated line. A. M. Wyman. il diags Ry R 59:111-16 Jl 22 '16

Raising settled bent of heavy concrete viaduct. il diags Eng N 76:221 Ag 3 '16

Reinforced-concrete arch has masonry facing. il diag Eng Rec 74:327 S 9 '16

Reinforced concrete slab railroad bridge with skeleton piers and cantilever abutments at Hallstead, Pa. A. M. Wolf. il diag Concrete 8:232 My '16

Reinforced-concrete street viaduct at Denver, Colo. il diags Eng N 75:166-9 Ja 27 '16

Repairing concrete bridge at Asheville, N. C. C. H. Neal. il Concrete 8:210 My '16

Replacing water-main bridge with concrete arch in Washington, D. C. il diags Eng N 74:1153-4 D 16 '15

Shortening the Lackawanna railroad. il (supp) diag Engineer 121:229-30 Mr 17 '16

Simple type of concrete bridge for grade crossings. C. W. Martin. il diags Eng N 75:408-10 Mr 2 '16

Slab-deck concrete railway bridge over highway. diags Eng N 76:1002-3 N 23 '16

Soo terminal type of station, being built by Lackawanna at South Orange, nears completion. il diags plan Eng Rec 73:378-81 Mr 18 '16

Special plant layout expedites construction of Brooklyn-Brighton viaduct. il plan Eng Rec 74:11-12 Jl 1 '16

Standard plans for I-beam and concrete bridges. il diags Eng N 76:471 S 7 '16

Steel cantilever ribs balanced over main piers to form arched concrete spans. il diags Eng Rec 73:677-9 My 20 '16

Surface treatment of Picaza bridge, Argentine. A. A. Agramonte. Concrete 8:160 Ap '16

Susquehanna concrete viaduct built in halves. il diags Eng N 75:537-40 Mr 23 '16

Test of new type reinforced-concrete bridge. il diags Eng N 76:620-1 S 28 '16

Theory and tests presented for design of sand boxes to lower arch centers. F. P. McKibben. il diag Eng Rec 74:530-2 O 28 '16

Three-hinge arch highway bridge Rochester, N. H., built in place at low cost. E. N. Sheffield. il diags Concrete 9:45-6 Ag '16

Three-hinged concrete bridge, San Diego, fails by undermining. diag Eng N 75:292 F 10 '16

Track depression project at Minneapolis. C. N. Bainbridge. il diags Ry Age 59:1059-63 D 3 '15

Two large concrete viaducts on the St. Paul. il diags Ry Age 60:241-3 F 11 '16

2,223-ft. concrete-arch bridge built on reverse curve. A. M. Richter. il diags plans Eng N 74:1268-72 D 30 '15

Valley crossing requires low-level bridge at Pasadena, Cal. il Eng N 75:170 Ja 27 '16

Waterproofing the Lackawanna railroad's new viaducts. G. J. Ray. diags Eng N 75:430 Mr 2 '16; Same. Ry R 58:401-2 Mr 18 '16; Same. Eng Rec 73:588 Ap 29 '16

Well-balanced mixing plants pour dense concrete from high towers on long highway bridge. il diags Eng Rec 73:632-4 My 13 '16

See also Trestles, Concrete

Bridges, Iron and steel

Bridge building in the shop; how the gigantic members of the Quebec bridge are fabricated. il Sci Am 115:192-3 Ag 26 '16

Cleveland's new bridge—the rôle of the motor truck in its construction. il Sci Am 115:480 N 25 '16

Corroded metal found in old truss bridge. J. H. Weatherford. il Eng Rec 74:464 O 14 '16

Cost and details of construction of a steel highway bridge, McLennan co., Tex. W. C. Davidson. il diags Eng & Contr 46:365-8 O 25 '16

Details of old iron viaduct, Cincinnati, in service 37 years. E. K. Ruth. il diags Eng N 75:936-7 My 18 '16

Long-span steel-arch bridge across Colorado river. il Eng N 75:672-3 Ap 6 '16

Normanskill viaduct; a second Popolopen case. W. H. Yates. il diags plan Eng N 74:1286-7 D 30 '15

Notable engineering work; viaduct at Lethbridge, on the Canadian Pacific railway. il Sci Am S 81:261 Ap 22 '16

Novel method of erection adopted in raising longest highway arch span at Topock, Ariz. il diags Eng Rec 74:580-1 N 11 '16

Popolopen steel arch in the Hudson highlands. il Eng N 76:337-8 Ag 24 '16

Bridges, Iron and steel—Continued

- Progress on the erection of the new Quebec bridge. H. P. Borden. *il Ry Age* 59:1189-91 D 24 '15
- Quebec bridge erection; progress in 1915. H. P. Borden. *il Eng N* 75:20-2 Ja 6 '16
- Record-breaking plate girders for Nickel Plate R. R. *il diags Eng N* 74:1105-7 D 9 '15
- Special steel and timber erection tower places heavy plate girders. *il Eng Rec* 73:354-5 Mr 11 '16
- Use of steel highway bridges in Iowa. J. H. Ames. *Eng & Contr* 44:492-3 D 29 '15
- Viaduct 170 feet high erected without false-work by special steel struts. *il diag Eng Rec* 74:618-19 N 18 '16
- Wind damages highway bridge over Kankakee river. C. Older. *il Eng Rec* 74:344-5 S 16 '16; Same cond. *Eng N* 76:638-9 O 5 '16

Protection

- Asbestos sheathing protects steel overhead bridge. *diag Eng Rec* 74:656 N 25 '16
- Protecting steel viaducts with concrete. W. C. Parsons. *il Concrete* 8:206 My '16

Bridges, Lift

- Bridge over the Arkansas river near Pine Bluff. *il diags Ry Age* 60:53-5 Ja 14 '16
- Electrically operated lift bridge, Pine Bluff, Ark. F. C. Perkins. *il Eng & Contr* 46:276 S 27 '16
- Heavy Scherzer rolling-lift bridge carries railway and highway traffic. *Eng Rec* 74:170 Ag 5 '16
- Lift bridges at a freight platform. *il diag Ry Age* 61:111-12 Jl 21 '16
- Pine Bluff, Ark., vertical-lift span suspended by chains. *il diags Eng N* 75:402-6 Mr 2 '16

See also Bridges, Bascule

Bridges, Pontoon. See Pontoon bridges**Bridges, Railroad**

- Advanced bridge deck construction. *il diags Ry Age* 60:511 Mr 17 '16
- Ballasted timber floor for the Sibley, Mo., bridge. *diags Eng N* 74:1156-7 D 16 '15
- Bridge across the Ohio river at Metropolis, Ill. *il Ry R* 59:38-40 Jl 8 '16
- Construction methods on viaducts of the Lackawanna railroad over Tunkhannock and Martins creeks. C. W. Simpson. *il Munic Eng* 50:94-8 Mr '16
- Construction of two concrete arch bridges at Rosalia, Wash. J. F. Pinson. *il diags Ry R* 59:647-8 N 11 '16
- Design of a railway pontoon bridge. H. J. Hansen. *pls W Soc E J* 21:7-25 Ja '16; Excerpts. *Eng Rec* 72:704-5 D 4 '15; Discussion. *W Soc E J* 21:25-32 Ja '16
- Erecting long plate girders by tower traveler. *il Eng N* 75:370-2 F 24 '16
- Girder bridge replaces truss over fast express tracks. *il diags Eng Rec* 73:383-4 Mr 18 '16
- K-truss bridge of Santa Fe across Arkansas river. *diags Eng N* 76:104-6 Jl 20 '16
- Locomotive impact tests. C. B. Young. *diag Ry Mech Eng* 90:288-9 Je '16
- New bridge at Kiskiminetas Junction, Pa. *il plan Ry Age* 61:939-41 N 24 '16
- New bridge for the Bessemer & Lake Erie. *diags Ry Age* 60:944 Ap 28 '16
- New bridge of the Chicago & Northwestern Ry. over the north branch of the Chicago river. *il diags plan Ry R* 59:203-6 Ag 12 '16
- New Kansas City terminal viaduct. *map Ry Age* 61:995-6 D 1 '16
- New Thames river bridge at New London, Conn. *diag Ry Age* 60:1588 Je 30 '16
- New three-track bascule bridge at Chicago. *il diags Ry Age* 61:233-6 Ag 11 '16
- Notable engineering work; viaduct at Lethbridge, on the Canadian Pacific railway. *il Sci Am S* 81:261 Ap 22 '16
- Ohio river bridge at Metropolis. *il diags Ry Age* 60:1025-7 My 12 '16
- Pennsylvania railroad bridge at Phoenixville. *il Ry Age* 60:1321-2 Je 16 '16
- Plate girders of record weight in Worcester viaduct. F. B. Freeman. *il diags Eng N* 75:1065-9 Je 8 '16
- Railway bridge over Ohio at Metropolis, Ill. *diags Eng N* 76:151-4 Jl 27 '16
- Raising a three-span bridge under traffic. *il diags Ry Age* 60:318-20 F 18 '16

- Reconstruction of the Ohio connecting bridge. *il diags Ry Age* 60:311-14 F 18 '16
- Record-breaking plate girders for Nickel Plate R. R. *il diags Eng N* 74:1105-7 D 9 '15
- Slab-deck concrete railway bridge over highway. *diags Eng N* 76:1002-3 N 23 '16
- Solid floors for through girder span. *diags Ry Age* 61:149-50 Jl 28 '16
- Soo terminal type of station, being built by Lackawanna at South Orange, nears completion. *il diags plan Eng Rec* 73:378-81 Mr 18 '16
- Steel spans and concrete arches combined to form unusual bridge at Ninetieth street, Cleveland. *il diags Eng Rec* 74:190-3 Ag 12 '16
- Steel truss spans raised more than 6 feet without interruption to traffic. *il diags Eng Rec* 73:807-8 Je 17 '16
- Strengthening the Cairo bridge on Illinois Central R. R. *diags Eng N* 75:448-9 Mr 9 '16
- Susquehanna concrete viaduct built in halves. *il diags Eng N* 75:537-40 Mr 23 '16
- Two large concrete viaducts on the St. Paul. *il diags Ry Age* 60:241-3 F 11 '16
- Wheel-load and impact charts for railway bridges. D. B. Steinman. *Eng N* 75:1173-6 Je 22 '16
- See also* Bridge inspection; Bridges, Bascule; Elevated railroads; Railroads—Track elevation; Trestles

Bridges, Suspension

- Design features of the Dewey suspension bridge across the Grand river, near Dewey, Utah. *diags Eng & Contr* 44:429-31 D 1 '15
- Parkersburg suspension bridge opened to traffic. *il Eng N* 75:914-15 My 11 '16
- Theory of displacements applied to analysis of suspension bridges. C. S. Whitney. *Eng Rec* 74:234-5 Ag 19 '16
- Two early suspension bridges just taken down. *il Eng N* 75:201-2 F 3 '16

Brier root

- Use of brier roots in the making of pipes. *Sci Am* 115:44 Jl 8 '16; Same. *Sci Am S* 82:23 Jl 8 '16

Brightness

- Diffusing media—diffusing glassware. *Illum Eng Soc* 11:367-71 no 3 '16
- Effects of brightness on vision; abstract. P. G. Nutting. *J Fr Inst* 182:531-2 O '16
- Experiments on the eye with inverted reflectors of different densities. C. E. Ferree and G. Rand. *il plan Illum Eng Soc* 10:pt 1a 1097-1130; Discussion. 1130-70 no 9 '15
- Fundamental principles of good lighting. P. G. Nutting. *Am Gas Light J* 103:403-6 D 27 '15; Same abr. *Sci Am S* 82:254-6 O 14 '16
- Interior illumination. *Illum Eng Soc* 11:36-9 no 1 '16
- Measurements of brightness-difference perception and hue-difference perception by steady and intermittent vision. H. E. Ives. *J Fr Inst* 182:542 O '16
- Retinal sensibilities related to illuminating engineering. P. G. Nutting. *Illum Eng Soc* 11:1-16; Discussion. 17-21, 131-6 no 1 '16
- Vision and the brightness of surroundings. P. W. Cobb. *diags Illum Eng Soc* 11:372-88; Discussion. 389-98 no 3 '16

See also Glare

Brinell meter. See Hardness**Briquets**

- Briquetted lignite coal. H. L. McDonald. *Power* 43:419-20 Mr 21 '16

Briquets (iron)

- Use of metal briquettes in cupolas. F. Wüst. F. Bocking and J. C. Stork. *Iron Age* 97:842 Ap 6 '16

Briquetting

- Coal-briquetting industry. C. T. Malcolmson. *Coal Age* 9:86-7 Ja 8 '16
- Fuel briquet industry in 1915. *J Fr Inst* 181:727 My '16
- Power briquetting press. *il Iron Age* 97:372-3 F 10 '16

British association for the advancement of science

- Annual meeting, Newcastle-on-Tyne. *Engineer* 122:229-30, 254-6, 274-6, 296-7 S 15-O 6 '16

British Columbia

See also Mines and mineral resources—
British Columbia

British Guiana

See also Mines and mineral resources—
British Guiana

British Honduras**Industries and resources**

Central America as an export field. G. Harris
and others. U S Bur For & Dom Com 113:
51-80 '16

British industries, Federation of. See Federation
of British industries

Broaching

Broaching method of manufacturing spur
gears. diag Mach 22:827 My '16

Broaching square taper holes in a brake lever.
il Mach 22:474 F '16

Broaching tools for multiple keyways. il Mach
22:561 Mr '16

Large broaching job. il diag Mach 22:458 F '16

Planish-broaching. il diag Mach 22:395 Ja '16

Brockton, Massachusetts**Sewerage**

Sewage disposal experiments at Brockton,
Massachusetts. R. S. Weston. J Ind & Eng
Chem 8:647-8 Jl '16

Broilers

Surface combustion broilers. il Gas Age 38:41
Jl 1 '16

Broiling

Device which makes broiling or roasting
simple. il Sci Am 114:624 Je 10 '16

Brokers**Accounting**

Long and short sales. S. Walton. J Account
21:466-70 Je '16

Bromates

Differential iodimetry; determination of perio-
dates, iodates, bromates and chlorates in the
presence of each other. O. L. Barnebey. Am
Chem Soc J 38:330-41 F '16

Bromelia. See Spanish moss

Bromination

Halogenation; bromination of hydrocarbons
by means of bromine and nitric acid. R. L.
Datta and N. R. Chatterjee. Am Chem Soc
J 38:2545-52 N '16

Thermal values of the fats and oils; the heat
of bromination. J. W. Marden. diags J Ind
& Eng Chem 8:121-6 F '16

Bromine

Examining commercial bromine. E. Waller. J
Ind & Eng Chem 8:837-8 S '16

Researches on pyrimidines; the mechanism of
the action of bromine on 2-mercaptopyri-
midines. T. B. Johnson and A. W. Joyce.
Am Chem Soc J 38:1557-66 Ag '16

Bromine compounds

Free energy of bromine compounds. G. N.
Lewis and M. Randall. Am Chem Soc J 38:
- 2348-56 N '16

Bromoacetylglucose

Preparation of bromoacetylglucose and certain
other bromoacetyl sugars. J. K. Dale. Am
Chem Soc J 38:2187-8 O '16

Bromoacetylxylose

Bromoacetylxylose and beta-triacetylmethyl-
xyloside. J. K. Dale. Am Chem Soc J 37:
2745-7 D '15

Bronze

Aluminium bronze. H. C. H. Carpenter. Sci
Am S 81:38 Ja 15 '16

Brittle manganese bronze. Foundry 44:161 Ap
'16

Bronze alloys for automobile construction.
W. M. Corse and G. F. Comstock. Mach 22:
1055-6 Ag '16; Same. Iron Age 98:251-4 Ag
3 '16

Bronze die-castings. P. J. Weber. Mach 22:411
Ja '16

Bronze in Catskill aqueduct. A. D. Flinn. Sci
Am S 82:263 O 21 '16

Bronze-on-bronze friction in sluice gates
tested. D. C. Henny. Eng Rec 74:330 S 9 '16

Bronzes for turbine blades. G. W. Jager.
Power 43:193-4 F 8 '16

Compression test for bronze; New York Cen-
tral R. R. Eng N 75:501-2 Mr 16 '16
Electroplating bronze. W. D. Treadwell and
E. Beck. Elec R & W Elec n 67:1006 D 11 '15

Government bronze mixtures. Foundry 44:77 F
'16

Inspection of bronze and brass. E. Jonson.
Metal Ind n s 14:424-6 O '16; Excerpts. Iron
Age 98:678-9 S 21 '16

Making bronze to specifications. Foundry 44:
25 Ja '16

Manufacture and uses of wrought manganese
bronze. J. L. Jones. Metal Ind n s 13:410-12
O '15; Same. Iron Tr R 58:233-4+ Ja 27 '16

Microstructural changes accompanying the
annealing of cast bronze. H. S. Rawdon. il
U S Bur Mines Tech Pa 60:1-17 '16; Same
cond. J Ind & Eng Chem 8:109-14 F '16;
Excerpts. Metal Ind n s 14:207-8 My '16

Mixture for phosphor bronze. Foundry 44:26
Ja '16

Phosphor bronze castings; example of im-
practical specifications. Metal Ind n s 14:
385 S '16

Properties of aluminum bronze alloys. W. M.
Corse. il Foundry 43:459-60 N '15; Same.
Iron Tr R 57:1137-8 D 9 '15

Standard test specimens of zinc bronze (Cu
88, Sn 10, Zn 2). C. P. Karr and H. S. Raw-
don. il diags U S Bur Stand Tech Pa 59:1-
67 '16; Excerpts. Foundry 44:229-30 Je '16

Stress produced by burning-in manganese
bronze. P. D. Merica and C. P. Karr. il
diag Foundry 44:431-3 O '16; Abstract. Iron
Age 98:831 O 12 '16; Abstract. Am Soc M E
J 38:931-2 N '16

Tests of aluminum bronze. W. M. Corse and
G. F. Comstock. Iron Age 98:80-1 Jl 13 '16

Unreliability of brass and bronze. A. D. Flinn.
Iron Age 96:1292-3 D 2 '15

Unreliability of the stronger bronzes. Eng N
76:998 N 23 '16

Waste and abuse of brass and bronze. R. R.
Clarke. Ry Mech Eng 90:361-2 Jl '16

See also Alloys; Bronzes; Bronzing

Specifications

Specifications and results of tests of commer-
cial bronze and brass castings. Mach 22:
1054 Ag '16; Same. Iron Age 98:252-3 Ag 3
'16

Bronzes

Bronze statuary and its production in ancient
and modern times; the lost wax molding
process. G. Frederick. il Metal Ind n s 14:
380-1 S '16 (to be cont)

Making statuary bronze. Foundry 44:76-7 F '16

Metallographic description of ancient Peruvian
bronzes. C. H. Mathewson. Sci Am S 81:142-
3 F 26 '16

Bronzing

Bronzing processes suitable for brass and cop-
per. T. I. Baker. Metal Ind n s 13:464-5,
501 N-D '15

Coloring brass and copper. Metal Work 86:500
() 20 '15

Elements of casting copper-base metal on
iron. R. R. Clarke. diags Foundry 44:368-71
S '16

Brooklyn, New York**Rapid transit**

Special details are used in design of steel ele-
vated structures in Brooklyn. il diags Eng
Rec 74:82-4 Jl 15 '16

Sewerage

Needle-beam heading method applied to sewer
tunnel in dry ground. il Eng Rec 73:324-5
Mr 4 '16

Streets

Construction of granite block pavements in
three cities. il Good Roads n s 12:73-5 Ag 5
'16

Granite pavement construction in Brooklyn,
N. Y. il Munic Eng 51:92-4 S '16

Wharves

New South Brooklyn pier at Thirty-fifth street
is the longest in New York. il diags Eng
Rec 72:753-4 D 18 '15

Brooklyn rapid transit company

Annual report for year ending June 30, 1916.
Ry Age 61:143-80, 215-18 Ag 4 '16

Brotherhood of locomotive engineers

Inside workings of the B. of L. E. Ry Age 61:
851-5 N 10 '16

Brownian movements

Brownian movement. C: E. Benham. Sci Am
S 82:9 J1 1 '16

Brunelleschi, Filippo, 1379-1446

Dome of S. Maria del Fiore, Florence; a study
of its structural system. R: F. Bach. Brickb
25:209-15 Ag '16
Portrait. Brickb 25:front Ja '16

Brushes

Brush of old wire rope run by motor cleans
reinforcing. R: R. Bradbury. diags Eng Rec
73:356 Mr 11 '16

Brushes (electric machinery)

Commutating-pole machines with brushes off
neutral; abstract. R. L. Witham. Elec W 68:
917-18 N 4 '16

Commutation trouble that was traced to poor
brushes. E. C. Parham. Elec W 66:1258 D
4 '15

Converter trouble cured by brush treatment.
Elec Ry J 47:135 Ja 15 '16

Correcting a brush-holder trouble. R. L.
Hervey. diag Elec R & W Elec'n 69:67 J1 8
'16

Interpoles, their principles and usage. G.
Fox. diags Elec R & W Elec'n 69:109-13 J1
15 '16

Operation of interpole direct-current machines.
J. Lebovici. diags Elec W 67:594-5, 651-3
Mr 11-18 '16

Proper adjustment of brushes in holders to
secure good operation. R. L. Hearvey. diag
Elec W 67:215 Ja 22 '16

Trimming commutator brushes properly.
L. W. Wyss. diags Elec W 67:1366 Je 10 '16

Bubbling fountains. See Drinking fountains**Buckets**

Hayward electric-motor bucket. il Power 42:
864 D 21 '15

Buckram

Finishing buckram. il Textile World 51:273 D
25 '15

Budget

Budget system in Ohio. E. M. Fullington. J
Account 21:114-24 F '16

Efficiency budget of Chicago. Munic Eng 50:
111 Mr '16

Grand Rapids budget system. C. W. Shafer.
Munic J 41:68-70 J1 20 '16

Municipal supply department; budget—stand-
ardization. H. M. Foster. Munic Eng 51:137-
8 O '16

Buenos Aires

Export trade suggestions; cost of living in
Buenos Aires. U S Bur For & Dom Com
misc ser 35:39-43 '16.

Railroads

New passenger station. il Ry Age 60:1134-6
My 26 '16

Buffalo, New York

Methods used in comprehensive survey. diag
map Eng N 75:466-7 Mr 9 '16

Railroads

Lehigh Valley terminal at Buffalo. il diags
plan Ry Age 61:445-9 S 15 '16

Wharves

Buffalo barge canal terminal. diags plan Eng
N 74:1124-5 D 9 '15

Buffalo, Rochester & Pittsburgh dock at
Buffalo. il diag Ry Age 61:359-60 S 1 '16; Ry
R 59:685-6 N 18 '16

Buffalo, Rochester & Pittsburgh railway

31st annual report for year ending June 30,
1916. map Ry Age 61:223-4, 262-4 Ag 11 '16

Bufs. See Grinding and polishing**Builders' exchanges**

Home of Cleveland builders' exchange. plan
Bldg Age 38:63 My '16

Builders' exchanges, National association of. See National association of builders' ex- changes**Building**

Building methods and millwork; old-time
methods contrasted with the present. G: E.
Walsh. il Bldg Age 38:59-60 Mr '16

Canadian plant for making acids and explo-
sives built at rate of \$300,000 a month. il
Eng Rec 73:710-11 My 27 '16

Diagrammatic progress schedules. C: A. Whit-
temore. Brickb 25:8-10, 31-4, 53-6, 91-4 Ja-
Ap '16

Erecting a new building around an older one.
il diag Eng N 75:80-1 Ja 13 '16

Erection methods for Boone county, Ia., court-
house. il Eng & Contr 46:357 O 25 '16

Isn't winter building feasible? Factory 17:
476-4 O '16

Methods of building construction. Bldg Age
38:59-60 Ap '16

Methods of building construction. D. P.
Barry. diags Bldg Age 38:55-6 J1 '16

Scientific methods in construction. S. E.
Thompson and W: O. Lichtner. Eng Soc W
Pa 32:433-54; Discussion. 454-65 Je '16

Some tricks of the builders' trade. J. F. Ho-
bart. diags Bldg Age 38:36-8 D '16

Wrinkles in house building. G. L. McMurphy.
diags Bldg Age 38:23-4 Ja; 29-32 Mr '16

See also Arches; Architecture; Bracing;
Bricklaying; Bridges; Building materials;
Building trades; Buildings; Cellars; Chim-
neys; Columns; Concrete construction;
Concrete houses; Cribs; Doors; Engineering;
Factories; Fireproof construction; Floors;
Foundation soils; Foundations; Framing
(building); Girders; Glue press; Graphic
statics; Grouting; Heating; Hot water sup-
ply; Hotels; House painting; Joints; Mine
buildings; Nails; Office buildings; Partitions;
Piers; Plaster and plastering; Plumbing;
Post office buildings; Railroads—Buildings;
Retaining walls; Roofs; Scaffolding; Shin-
gling; Shipbuilding; Shoring and under-
pinning; Skylights; Stair building; Stair-
ways; Steel construction; Strains and
stresses; Strength of materials; Tenement
houses; Tennis court buildings; Theaters;
Towers; Trusses; Ventilation; Vibration;
Wall footings; Walls; Wind pressure; Win-
dows; also headings beginning Building

Cost

Comparative cost of concrete and mill build-
ings. L. H. Allen. Concrete 9:135-6 O '16

Cost of an electric express building. Elec Ry
J 47:574 Mr 18 '16

Cost of factory buildings of timber and of
concrete. F. E. Davidson; T. L. Condron.
Eng N 76:884-6 N 9 '16; Same. Eng & Contr
46:450-2 N 22 '16

Costs of concrete and mill type buildings.
Concrete 9:25 J1 '16; Same cond. Eng &
Contr 46:95 J1 26 '16

See also Bridges—Cost; Concrete construc-
tion—Cost

Estimates

How to estimate wall board work. J. A.
Poesl. diags Bldg Age 38:34-6 My '16

Need of accurately estimating costs. Bldg Age
38:25-6 Ja '16

Unit costs in building construction. S. E.
Thompson. Concrete 8:129-30 Mr '16; Same.
Eng & Contr 45:220-1 Mr 1 '16

Variation in builders' estimates. Bldg Age 38:
55-6 Ap '16

See also Concrete construction—Estimates;
Heating—Estimates; Quantity system of es-
timating; Sheet metal work, Architectural
—Estimates

Exhibitions

Attractive exhibits at the Complete building
show in Cleveland. il Bldg Age 38:37-40 Ap
'16

Inspection

See Building inspection

Repair and reconstruction

New columns and trusses to support added
stories in Engineering societies building.
diags Eng Rec 74:412-14 S 30 '16

Placing a steel frame in an old wall-bearing
building. il diags Eng N 76:778-9 O 26 '16

Building—Repair and construction—*Continued*
Repair beams and columns in concrete structure; Majestic theater, Fort Worth, Tex. diags plan Eng Rec 74:538 O 28 '16

Specifications

How cost of building may be reduced; use of better plans and specifications. A. M. Wolf. Bldg Age 38:25-6 O '16

Standards

See Buildings, Standard

Tables, calculations, etc.

Bevels for rafters and hoppers. A. Cole. diags Bldg Age 38:39-41 My '16
Problems in geometrical drawing. W. S. Wilkin. diags Bldg Age 38:41-4 J1 '16
Rules for finding lengths and bevels of rafters and braces. D. W. Daley. Bldg Age 38:53-4 S '16

Terminology

Building terms discussed. diags Bldg Age 38:56-7 My '16

Building, Fireproof. See Fireproof construction
Building materials

Good faith of the government at stake in the proposed bill for the building of the Department of justice. Am Inst Arch J 3:4-5 Ja '16
Performance of building contracts. A. L. H. Street. Bldg Age 38:45-6 O '16
Should details be furnished before a contract is signed? C. A. Wright. Concrete 1:185 Ap '16
Standard form of bond. W. S. Parker; R. H. Townner. Am Inst Arch J 4:309-11 Je '16
Technical aspects of shipbuilding contracts; abstract. H. Bocler. Int Marine Eng 20:569-70 D '15
Three contract clauses construed. A. L. H. Street. Bldg Age 38:41 Ap '16
See also Bridge contracts; Contractors; Heating contracts; Plumbing contracts

Building failures

Details of roof-arch collapse in Atlanta. il diags Eng N 76:70-2 J1 13 '16
Failure and righting of a million-bushel grain elevator, North Transcona, Can. A. Allaire. il diags Eng & Contr 45:66-8, 110-13 Ja 19, F 2 '16
Heavily loaded with snow, St. James cathedral dome, Seattle, falls. il Eng Rec 73:244-5 F 19 '16

See also Bridge failures; Concrete construction—Failures; Dam failures

Building inspection

Home examination for assistant building inspector. Eng N 74:1128 D 9 '15

See also Bridge inspection

Building laws and regulations

Building boom vs. unfair lien laws. Bldg Age 38:46-7 Ja '16
Building codes to insure good furnace service. Metal Work 85:256 F 18 '16
Building districts and restrictions to be based upon definite principles. Eng Rec 73:284-5 F 26 '16
Building districts defined for New York city. map Eng Rec 74:166 Ag 5 '16
Building restriction in New York. Munic J 41:158-9, 191-2 Ag 10-17 '16
Cleveland engineering society to the rescue. C. E. Drayer. Eng N 76:328 Ag 17 '16
Comparative designs of office buildings; extracts from Chicago building ordinance. Eng N 74:1 W Soc E J 21:349-5, 653-4, 662-3, 666-7, 693-6 O '16
Data on the requirements of different building regulations and authorities governing reinforced concrete columns; table. P. F. Furber. Eng & Contr 45:204-6 Mr 1 '16
Grading the height, size, and use of all buildings in New York. G. B. Ford. Am Inst Arch J 4:204-6 My '16
Important legal decisions in 1915. A. L. H. Street. Bldg Age 38:45-6 F '16
Land speculation in Flint, Michigan. Am Inst Arch J 4:368-70 S '16
Municipal building permits. J. Simpson. Munic J 40:303-4 Mr 2 '16

New York zoning regulations. G. B. Ford. Eng N 76:405-6 Ag 31 '16
Pittsburgh flat-slab ruling and the Seattle test. E. Godfrey; J. A. Ferguson. Eng N 75:1244-5 Je 29 '16
Pittsburgh ruling on flat-slab concrete-floor systems. J. A. Ferguson. Eng N 75:910-11 My 11 '16
Provisions of the revised New York building code. Eng & Contr 45:347-8 Ap 12 '16
Roofing construction in New York. Metal Work 85:55-6 Ja 7 '16
Shall we save New York? F. L. Ackerman. Am Inst Arch J 4:160-1 Ap '16
Significant features of New York's new building code. Eng Rec 73:101 Ja 22 '16
Specifications cover grade A office building. Eng Rec 73:831 Je 24 '16
Temporary flooring in steel buildings during erection. il Eng N 75:898 My 11 '16
Ventilation of buildings in New York. Bldg Age 38:63 Ja '16

See also Bridge contracts; Building contracts; Building inspection; Heating—Laws and regulations; Plumbing laws and regulations; Schoolhouses—Laws and regulations

Building materials

Co-efficients of heat transmission established by the Austrian engineers. A. A. Jones. diags Heat & Ven 13:36-9 N '16
Effect of velocity and humidity of air on heat transmission through building materials. J. A. Moyer. diags Heat & Ven 13:15-21 F '16
Establishment of a standard for transmission losses from buildings of all constructions. R. P. Bolton. diags Am Soc Heat & V E 21:552-8 '15; Same. Heat & Ven 12:19-23 J1 '15; Same. Dom Eng 73:264-6 N 27 '15; Same cond. Metal Work 84:373-4 S 17 '15; Discussion. Am Soc Heat & V E 21:558-62 '15
Hard pine timbers versus steel beams for mill floors. G. H. Perkins. Textile World 51:1875 Ap 15 '16
Heat transmission through various types of sash and the causes and prevention of internal condensation in double-glazed sash. A. N. Sheldon. il Am Soc M E J 38:890-4 N '16
How to figure heating requirements. Metal Work 85:248-9 F 18 '16
Newly collected data on heating and ventilation. E. B. Johnson. diags Heat & Ven 13:19-24 N '16
Use of clay products in domestic building construction. A. H. Kimball. Sci Am S 81:363 Je 3 '16
See also Bricks; Cement; Concrete; Concrete, Reinforced; Concrete blocks; Concrete stone; Fire-resisting materials; Fireproof construction; Glass; Gravel; Gunite; Hollow tile; Iron; Lime; Metal lath; Mortar; Plaster and plastering; Roofing; Scagliola; Steel; Steel, Structural; Strength of materials; Stucco; Timber; Wall board; Wood

Testing

Prof. Brabbee's method of testing building materials for heat transmission and air leakage; diagram. Heat & Ven 13:38 F '16
Building stones. See Building materials; Granite; Quarries and quarrying
Building terms. See Building—Terminology
Building trades
Brief review of the building situation. Metal Work 84:850 D 31 '15
Building operations for March 1915 and March 1916 compared. Dom Eng 75:78-9 Ap 15 '16
Building operations for July, 1916 and July, 1915 compared. Dom Eng 76:265-6 Ag 19 '16
Building operations for October 1915 and October 1916 compared. Dom Eng 77:228-9 N 18 '16
Building trades wages for 1916. Bldg Age 38:74 My '16
Chicago's 1915 building operations. il Bldg Age 38:28-30 F '16
New building construction in Manhattan and Brooklyn in 1915. Bldg Age 38:26 F '16
Rise from carpenter to contractor. G. E. Walsh. il Bldg Age 38:66-8 Je '16
Building vibration. See Vibration

Buildings

Erroneous data on the lives of buildings. Eng & Contr 45:360-1 Ap 19 '16

See also Bank buildings; Car houses; Churches; College architecture; College buildings; Department stores; Exhibition buildings; Factories; Historic buildings; Industrial buildings; Machine shops; Market buildings; Mine buildings; Municipal buildings; Office buildings; Park buildings; Post-office buildings; Printing offices; Public buildings; Railroads—Buildings; School-houses; Store buildings; Tennis court buildings; Theaters; Warehouses; Young men's Christian association buildings

Buildings, Collapse of. *See* Building failures

Buildings, Farm. *See* Farm buildings

Buildings, Historic. *See* Historic buildings

Buildings, Municipal. *See* Municipal buildings

Buildings, Portable

Kahn portable small steel buildings. il Eng Rec 73:499 Ap 8 '16

Portable buildings. il Munic J 40:252-3 F 17 '16

Portable concrete buildings for railways. A. M. Wolf. il Concrete 9:64 Ag '16

Portable steel buildings. il Ry Age 61:157 J1 28 '16

Portable steel buildings on construction work. il Eng N 76:585 S 28 '16; Eng & Contr 46: 438 N 15 '16

Sectional steel service buildings for electrical companies. il Elec R & W Elec'n 69:79-80 J1 8 '16

Steel buildings made up of pinned panels. il Sci Am 115:353 O 14 '16

See also Bungalows, Portable

Buildings, Public. *See* Public buildings

Buildings, Standard

Standardization of buildings to insure economy and quick delivery. H. S. Jacoby. il Eng Rec 73:358-9 Mr 11 '16

Standardized industrial buildings. W. J. Austin. diags Iron Age 97:426-8 F 17 '16

Bukowina. *See* Mines and mineral resources—Bukowina

Bulkheads

Brush and riprap buffer will protect bulkheads. H. E. Weir. il diag Eng Rec 73:743 Je 3 '16

Plugging old water tunnels. F. A. Smith. diag plan Eng N 75:706-7 Ap 13 '16

Bulkheads (naval architecture). *See* Naval architecture—Subdivisions

Bullets

Copper and nickel in ammunition. G. Lyon, jr. il Metal Ind n s 14:1-5 Ja '16

In what position does a pointed infantry bullet, shot vertically along a straight trajectory, return to earth? Sci Am 114:9 Ja 1 '16

Noise of a bullet. Sci Am S 81:4 Ja 1 '16

Stream-line bullets in flight. E. E. Gregory. Sci Am 114:469 My 6 '16

See also Shells (projectiles); Shrapnel shells

Bullock, William, 1813-1867

Master minds of type and press. J. S. Rite-nour. Inland Ptr 57:371-2 Je '16

Bungalows

Building a modern low-cost bungalow of hollow tile construction. E. G. Zorn. il diags plans Bldg Age 38:29-33 My '16

Builds hollow wall bungalow with home made machine. H. L. Wilson. il plan Concrete Cem 8:30 Ja '16

Bungalow home of a Californian. il plan Bldg Age 38:51-2 My '16

Bungalow of picturesque design. il diags plans Bldg Age 38:19-21+ My '16

Bungalow we built by the sea. L. J. Aimar. il plans Bldg Age 38:19-26 Mr '16

Five-room bungalow of moderate cost. il diags plan Bldg Age 38:46-8 Ag '16

Use of wall board in the bungalow. J. A. Poessl. il Bldg Age 38:42-5 Ag '16

Bungalows, Portable

Transportable bungalow drawn by runabout. il Sci Am 114:102 Ja 22 '16

Bunsen burners

Bunsen burner design and operation. G. C. Carnahan. Am Gas Light J 104:218-20 Ap 3 '16

Bunting

Cotton bunting; navy and commerce departments favor it. Textile World 51:1283+ Mr 4 '16

Buonarroti, Michelangelo, 1474-1564

Portrait. Brickb 25:front S '16

Buoys

United States lighthouse service. Sci Am S 82:367 D 2 '16

Burden, Mrs. Arthur Scott

Country house of Mrs. Arthur Scott Burden. H. D. Smith. il plans Brickb 25:192, 197-9, pl 119 Ag '16

Bureau of standards. *See* United States—Standards, Bureau of

Burets

Modification of the gas burette of the Parr total carbon apparatus. H. Loomis. diag J Ind & Eng Chem 8:639 J1 '16

Burglar alarms

Simple burglar alarm. E. Kemp. diags Elec R & W Elec'n 68:295 F 12 '16

Burial

See also Tombs

Burlap

Manufacturing yarn from burlap. Textile World 51:4731 N 4 '16

Burma**Industries and resources**

Burma corporation ltd. report. Eng & Min-J 102:271 Ag 5 '16

Burma increasing output of the Bawdwin mines. Eng & Min J 101:20-1 Ja 1 '16

Geology of the Bawdwin mines. M. H. Loveman. il maps Am Inst Min E Bul 120:2119-43 D '16

Burners

Pulverized coal for open hearths. J. W. Fuller. diags Iron Tr R 59:902-3 N 2 '16; Abstract. Iron Age 98:1038 N 2 '16

Use of powdered coal in metallurgical processes; a discussion of the engineering principles involved. C. J. Gadd. diags J Fr Inst 182:333-43 S '16; Abstract. Iron Age 97:890-5 Ap 13 '16; Abstract. Am Soc M E J 38:423-4 My '16

See also Bunsen burners; Gas burners; Oil burners

Burners, Gas. *See* Gas burners

Burning bush

Dictamnus fraxinella. il Sci Am 115:441 N 11 '16

Busbars

Busbar data for outdoor switching structures. C. A. Mees. diag Elec W 67:86-8 Ja 8 '16

Busbars at different voltages energized by same standby battery in emergencies. diag Elec W 67:155 Ja 15 '16

Castling station busbar compartments in place. il Elec W 68:179-80 J1 22 '16

Design of power-station and substation bus structures. M. M. Samuels. il diags Elec W 67:142-5 Ja 15 '16

Device for shaping busbar copper. R. H. Richards. diag Elec W 67:435 F 19 '16

Newcastle local section: chairman's address. P. V. Hunter. diags Inst E E J 54:104-10 D 15 '15

Buses, Jitney. *See* Jitney buses

Buses, Motor. *See* Motor buses

Bushings

Bushing grinding wheels. Foundry 44:221-2 Je '16

Jig bushings. R. F. Pohle. diags Mach 22:754-5 My '16

Lock for slip bushings. W. B. Bennett. diag Mach 23:60 S '16

Making bronze keyed bushings in cast iron chills. J. McGinnis. il diags Metal Ind n s 14:66-7 F '16

Making drill jig bushings. E. Lee. diag Mach 23:48 S '16

Rivett self-centering bushing chuck. il diags Mach 22:715 Ap '16

Bushings—Continued

Turning eccentric bushings. N. I. Mosher. *il* *diag* *Mach* 22:800-1 *My* '16

Business

Better business building. G. W. Hill. *Dom Eng* 74:172, 201 *F* 5-12 '16

Buying and selling control business success.

B. F. Henry. *Metal Work* 86:79-80 *JI* 21 '16

Danger of buying business on seller's claims.

E. J. Buckley. *Metal Work* 85:323 *Mr* 3 '16

Efficiency of preparedness in business. J. Cal-

der. *Met & Chem Eng* 13:936-9 *D* 15 '15;

Excerpt. *Iron Age* 96:1466 *D* 23 '15

Former owner and the old business. E. J.

Buckley. *Metal Work* 84:811 *D* 24 '15

Ideal spirit in trade relations. J. W. Jenks.

Am Ind 16:40 *Ja* '16

Industrial preparedness for peace. M. Chip-

man. *Sci Am* 114:144-5 *F* 5 '16

University and business. A. D. Little. *J Ind*

& *Eng Chem* 8:65-6 *Ja* '16

See also Accounting; Advertising; Audit-
ing; Bookkeeping; Business conditions;
Business education; Card system in busi-
ness; Chamber of commerce of the United
States; Collecting of accounts; Commerce;
Corporations; Cost accounting; Credit; Ex-
port trade; Files and filing; (documents);
Government regulation of industry; House
organs; Manufactures; Office management;
Profit; Purchasing; Railroads—Records;
Records; Salesmen and salesmanship; Sci-
entific management; Show windows; Suc-
cess

Bibliography

List of recent book reviews on business. *Spe-
cial Libraries* 7:34-5 *F* '16

Business conditions

Address at American iron and steel institute:
abstracts. E. H. Gary. *Iron Tr R* 58:1223-5

Je 1 '16; *Iron Age* 97:1320-2 *Je* 1 '16

Address at American pig iron association an-
nual meeting, Feb. 18. E. N. Hurley. *Iron*

Tr R 58:444-6 *F* 24 '16

Business conditions in the middle west; lead-

ing manufacturers of Central states express

their belief in coming of prosperity during

the new year. *Metal Work* 85:29-32 *Ja* 7 '16

Business outlook. F. M. Huston. *Heat & Ven*

12:30-1 *O*; 33 *N* '15; 13:29 *F*; 57-8 *Mr*; 44 *Ag*

'16

Business situation. *Eng Rec* 73:2-3 *Ja* 1 '16

Continuance of railway prosperity; views of

leaders in transportation and trade. *Ry R*

58:56-62 *Ja* 8 '16

Exceptional conditions affect development of

electrical manufacturing. A. W. Berresford.

Elec W 67:34-5 *Ja* 1 '16

Future of the technical and trade press. J. H.

McGraw. *Eng Rec* 73:554-5 *N* 4 '16

General business conditions. map *Elec Ry J*

47:127 *Ja* 15 '16

Industrial conditions and needs. W. H. Barr.

Am Ind 16:15-17 *D* '15

Making permanent our prosperity. G. M. Rey-

nolds. *Dom Eng* 73:419 *D* 25 '15

Protection for our home market. H. C. Es-

tep. *il* *Iron Tr R* 58:1-9 *Ja* 6 '16

Retrospective review of 1915—outlook for

1916; business conditions existing in the

metal industries. *Metal Ind n s* 14:26-7 *Ja*

'16

State of American business units. E. N. Hur-

ley. *Elec W* 66:1241-2 *D* 4 '15

Successful business and the trade press. E. N.

Hurley. *Automobile* 35:893-5 *N* 23 '16

Traffic's strangle-hold on business. E. L.

Shaner. *il* *Iron Tr R* 58:751-6 *Ap* 6 '16

What is the basis of our present prosperity?

E. B. Leigh. *Ry Age* 61:758-9 *O* 27 '16

What of nineteen sixteen. D. R. Forgan. *Dom*

Eng 73:111-12 *Ja* 22 '16

What the development of foreign trade means

to the engineer. F. Lavis. *Eng Rec* 74:659-60

N 25 '16

Business education

Commercial education for domestic and for-

eign trade. F. C. Schwedman. *Am Ind* 16:

25-7 *Mr* '16

Commercial education for foreign trade. *Iron*

Age 97:320-1 *F* 3 '16

Business ethics

See also Competition, Unfair

Business law. *See* Commercial law

Butane

Critical constants of normal butane, iso-

butane and propylene and their vapor pres-

sures at temperatures between 0° C. and

120° C. F. M. Seibert and G. A. Burrell.

diag *Am Chem Soc J* 37:2683-91 *D* '15

Thermal decomposition of the propane-butane

fraction from natural gas condensate. J. E.

Zanetti. *diag* *J Ind & Eng Chem* 8:674-8 *Ag*

'16

Butter

See also Oleomargarine; Peanut butter

Analysis

Detection of natural and artificial pigments

in oleomargarine and butter. L. S. Palmer

and W. E. Thrun. *J Ind & Eng Chem* 8:614-

18 *JI* '16

Vitamines and lipoids in butter and marga-

rine. J. De Ruiter. *J Ind & Eng Chem* 8:

1020-1 *N* '16

Butter, Substitutes for. *See* Cocoanut oil; Oleo-

margarine

Butterflies

Probable perception of invisible light by some

animal species. J. F. Tristan and G. Mich-

aud. *il* *Sci Am* 114:81+ *Ja* 15 '16

Buttonlath

Buttonlath plaster board. *il* *Bldg Age* 38:85

Ap '16

Buttons

Foreign trade in buttons. *U S Sp Cons Rep*

75:1-184 '16

Buying. *See* Purchasing

By-products. *See* Waste products

C

Cab signals. *See* Railroads—Signals

Cabinet work

Cabinet work for the carpenter. P. D. Otter.

diags *Bldg Age* 38:71-2 *My*; 47-8 *Je* '16

Estimating mill and cabinet work. *Bldg Age*

38:69-70 *F* '16

Cable codes. *See* Telegraph codes

Cable railroads

Cable inclines on the Sao Paulo Ry. in Brazil.

F. A. Molitor. *il* *diag* map *Eng N* 76:976-7

N 23 '16

Cableway railroad affords access to Nevada

quarry. *il* *Eng Rec* 74:355 *S* 16 '16

Conquering the Alps by cable railway. *Ry Age*

61:364-6 *S* 1 '16

See also Mountain railroads

Cables

Construction of a cast-bronze basket grip for

pulling cable. I. H. Metzger. *il* *diag* *Elec W*

67:719 *Mr* 25 '16

Operating a gravity incline with limited

cable. C. Mentzel. *il* *Eng & Min J* 101:559-

60 *Mr* 25 '16

See also Cableways; Electric cables; Tele-

phone cables; Wire

Cables, Electric. *See* Electric cables

Cables, Submarine

Laying long submarine telephone cables in

Massachusetts waters. *il* *Elec R & W Elec'n*

69:639 *O* 7 '16

Laying submarine cables across the Golden

Gate. *il* *diag* *Elec W* 67:532-4 *Mr* 4 '16

Method of laying submarine cable across Ohio

river. *il* *Elec W* 68:182 *JI* 22 '16

Method of splicing high power submarine

electric cables. *il* *Eng & Contr* 46:278-9 *S*

27 '16

Small points relating to duplex balances on

long submarine cables. W. Judd. *Inst E E*

J 54:489-90 *Ap* 1 '16; Same cond. *Elec W* 68:

1111 *D* 2 '16

Submarine cable rapid telegraphy; ocean and

intercontinental telephony. B. Gati. *il* *diags*

Am Inst E E Pro 34:2101-29 *S* '15; Discus-

sion. 35:1059-62 *JI* '16

Cables, Submarine—Continued

Unbroken alternating current for cable telegraphy. G. O. Squier. diags J Fr Inst 180: 311-34 S '15; Same cond. Elec R & W Elec'n 68:586-8 Ap 1 '16; Abstract. Elec W 66:299-300 Ag 7 '15

Cableways

Aerial passenger cableway of unique type crosses Niagara whirlpool. il Eng Rec 73:456 Ap 1 '16
Aerial ropeway at Niagara falls. il diags Engineer 122:16-17 Jl 7 '16
Aerial tramway as substitute for a bridge, Philippine Islands. F. T. James. il Eng N 76: 12-13 Jl 6 '16
Aerial tramway at Niagara falls. il Elec Ry J 48:1022-3 N 11 '16
Aerial tramway locked by windstorm. H. W. Baker. il diags Eng & Min J 102:91-2 Jl 8 '16
Cable tramways used on construction work. il Eng N 75:1236-7 Je 29 '16
Cableway and railway for the ascent of Mont Blanc. il diags map Eng N 74:1216-17 D 23 '15
Drag line outfit saves 2-mile haul. il Eng & Contr 46:427 N 15 '16
Features of an aerial cableway over the whirlpool at Niagara falls, Ontario. Eng & Contr 45:274 Mr 22 '16
Lidgerwood levee building cableways on Mississippi river improvement. il Eng & Contr 45:528 Je 7 '16
North Carolina has 3,800- and 4,200-ft. cableways. il Eng N 75:1057-8 Je 1 '16
Operation and maintenance cost of aerial tramways. Eng & Min J 101:986-7 Je 3 '16
Over the whirlpool by aerial cable; aerial scenic railway recently completed at Niagara falls. C. W. Person. il Sci Am 114:330+ Mr 25 '16
Recent work with slackline cableway levee building machine. il Eng & Contr 45:529 Je 7 '16

See also Conveying machinery; Suspended railways; Telferage

Caboose cars. See Cars, Caboose**Cadillac motor car co.**

Tool system of Cadillac motor car co. E. K. Hammond. il Mach 22:867-75; 23:143-53 Je, O '16

Cadmium

Cadmium in spelter. W. R. Ingalls. Metal Ind n 8 14:429-30 O '16
Recovery of cadmium from ores, furnace products, flue dusts and bag house dusts, patent by R. H. Stevens. Met & Chem Eng 15:656-7 D 1 '16
Revision of the atomic weight of cadmium; the electrolytic determination of cadmium in cadmium bromide. G. P. Baxter, M. R. Grose and M. L. Hartmann. Am Chem Soc J 38:857-67 Ap '16

Cadmium bromide

Revision of the atomic weight of cadmium; the electrolytic determination of cadmium in cadmium bromide. G. P. Baxter, M. R. Grose and M. L. Hartmann. Am Chem Soc J 38:857-67 Ap '16

Caesium. See Cesium**Caissons**

Big bridge caissons launched from submerging pontoon. A. Frederickson. il Eng Rec 74:150 Jl 29 '16
Building concrete lighthouse on Brandywine shoal. T. J. Rout. il diags Eng N 75:928-31 My 18 '16
Concrete in dry open caisson deposited by tremie. diags Eng N 76:172-3 Jl 27 '16
Double-derrick platform for large caisson job. diags Eng N 76:408-9 Ag 31 '16
Harbor basin at Copenhagen formed by long caissons floated to place. O. Blume. il diags Eng Rec 74:207-8 Ag 12 '16
Largest bridge caissons rivaled by timber crib sunk in free air in 34 days. il diags map Eng Rec 74:98-100 Jl 22 '16
Largest dredging caisson sunk as building foundation at Bear lake. diags Eng N 76: 98-100 Jl 20 '16

Calamary oil

Calamary oil. M. Tsujimoto. J Ind & Eng Chem 8:801 S '16

Calcination

Calcination of zinc carbonate. W. P. Simpson. diags Met & Chem Eng 14:181-3 F 15 '16

Calcium

Application of the paper pulp filter to the quantitative estimation of calcium and magnesium. S. L. Joudi and E. H. Kellogg. il J Fr Inst 181:217-32 F '16
Estimation of calcium in ash of forage plants and animal carcasses. S. B. Kuzirian. Am Chem Soc J 38:1996-2000 O '16
Measurements of resistivity and thermal electromotive force. E. F. Northrup. Met & Chem Eng 15:193-7 Ag 15 '16
Modification of McCrudden's method for calcium, for the estimation of calcium and strontium in the presence of phosphoric acid and a small amount of iron. O. B. Winter. J Ind & Eng Chem 8:603-4 Jl '16

Calcium carbide

Battling with 300 tons of calcium carbide. R. G. Skerrett. Sci Am 115:171 Ag 19 '16

Calcium carbonate

Complete solubility curve of calcium carbonate. J. Johnston and E. D. Williamson. Am Chem Soc J 38:975-83 My '16

Calcium chloride

Calcium chloride hastens seasoning of concrete. Eng Rec 74:266-7 Ag 26 '16
Efficiency of calcium chloride, sodium hydroxide and potassium hydroxide as drying agents. G. P. Baxter and H. W. Starkweather. Am Chem Soc J 38:2038-41 O '16

Calcium cyanamid

Production of calcium cyanamid, patented by J. H. Ljdhholm. diags Met & Chem Eng 15:215-16 Ag 15 '16

See also Cyanamid

Calcium tartrate

Crystallization of calcium tartrate. F. D. Chat-taway. il Am Chem Soc J 38:2519-22 N '16

Calculating machines

Brunton slope chart. il Eng & Min J 100:967 D 11 '15
Complete calculating machine. il Eng M 51: sup-6 Ap '16
Comptometer for engineering calculations. il Munic J 39:962-3 D 23 '15
Monroe calculating machine. il Eng M 51:sup 2-3, sup1-2 My, S '16; Eng Rec 74:306 S 2 '16; Munic J 41:396 S 28 '16
New trigonometric and numerical computer. il Munic Eng 51:78-9 Ag '16
Pipograph. il Metal Work 85:294 F 25 '16
Railways use calculating machines to increase office efficiency. Elec Ry J 48:735 O 7 '16
Ross precision computer giving results accurate to five places. il Eng & Contr 44:298 O 13 '15; Elec W 66:604 S 11 '15; Colliery 36: 166-7 O '15; Eng Rec 72:466 O 9 '15; Eng & Min J 100:971-2 D 11 '15; Munic Eng 49: 242+ D '15; Sci Am 114:85 Ja 15 '16
Slide-rule replaced by a new computer. Y. Wang. il diags Eng N 75:1120 Je 15 '16
32-element harmonic synthesizer. D. C. Miller. bibliog il diags J Fr Inst 181:51-81 Ja '16

See also Slide rule

Calculators. See Calculating machines**Calendar**

Simplex calendar. J. C. Robertson. Sci Am S 81:122-3 F 19 '16

Calgary, Alberta**Electricity supply**

Calgary's municipal power plant. A. G. Christie. il diags Power 43:352-7, 389-90 Mr 14-21 '16

Rapid transit

War checks the growth of Calgary street railway. il plan map Elec Ry J 48:962-4 N 4 '16

Sewerage

Laying concrete in polar weather. W. E. Hardenburg. Munic J 40:195-6 F 10 '16

Calico painting

Indian hand-painted calicoes. G. P. Baker. Sci Am S 82:62-4 Jl 22 '16

Calico printing

Bright colors of apron cloths. R. Sansone. diags Textile World 51:899+ Ja 29 '16

Calico printing—Continued

- Calico printing; its origin and development. R. Reoch. *Textile World* 51:2097, 2099 Ap 29 '16
 Machinery for bleaching, dyeing, and printing cotton fabrics. *Engineer* 121:271, 469-71, 531-9, 541; 122:26-8 Mr 31, Je 9, 30, Jl 14 '16

California

- Region of the greatest snowfall. A. H. Palmer. *il Sci Am S* 81:88-9 F 5 '16
See also Roads—California

Description and travel

- Tree of legend and romance; cypress in California. M. Daniels. *il Am For* 22:76-81 F '16

Flood control

- Check dams in the mountains of Los Angeles county. F. H. Olmsted. *Eng N* 75:551 Mr 23 '16

- Control of mountain torrents by check dams. F. H. Olmsted. *il Eng N* 75:314-15 F 17 '16

- Flood control in Los Angeles county California. *il map Eng N* 75:272-5, 310-13 F 10-17 '16

- Los Angeles county, Cal., flood project. *Eng & Contr* 45:sup29-30 F 9 '16

Industries and resources

- American magnesite in California. G. H. Manlove. *il Iron Tr R* 58:14-15 Ja 6 '16

- Pacific coast iron situation; the iron ores of California and possibilities of smelting. C. C. Jones. *map Am Inst Min E Bul* 105:1887-98 S '15; Same cond. *Iron Tr R* 57:1273-6+ D 30 '15; Discussion. *Am Inst Min E Bul* 108:2496-501 D '15

- See also Gold mines and mining—California; Mines and mineral resources—California*

California (battleship)

- Electrically propelled battleship California. *diags Elec W* 66:1252 D 1 '15

California association of contractors and dealers

- 7th annual convention, Stockton, Cal., July 14-16. *Elec R & W Elec'n* 69:190-1 Jl 29 '16

Calipers

- Increasing accuracy of calipers by using telephone receivers. *il Sci Am* 114:64 Ja 8 '16

See also Micrometers

Calomel

- Calomel standard cell. G. F. Lipscomb and G. A. Hulett. *Am Chem Soc J* 38:20-7 Ja '16; Corrections. 38:889 Ap '16

- Dissociation pressures of mercurous chloride. A. Smith and R. P. Calvert. *Am Chem Soc J* 38:801-7 Ap '16

- Laboratory notes on the standardization of the mercurials. D. K. Strickland. *J Ind & Eng Chem* 8:254-6 Mr '16

- Study of the tenth-normal hydrochloric acid calomel electrode. N. E. Loomis and M. R. Meacham. *Am Chem Soc J* 38:2310-16 N '16

Calorimeters and calorimetry

- Adiabatic calorimeter. F. Daniels. *diags Am Chem Soc J* 38:1473-80 Ag '16

- Apparatus for the study of heat radiation.

- J. D. Hoffman. *il Am Soc Heat & V E* 21:494-8 '15; Same cond. *Heat & Ven* 12:28-30 O '15; Discussion. *Am Soc Heat & V E* 21:498-500 '15

- Industrial and laboratory gas calorimeter. *diag Met & Chem Eng* 14:610 My 15 '16

- Measuring the heat value of fuels to the thousandth part of a degree. *Sci Am* 115:457 N 18 '16

- Standard methods of gas testing. *U S Bur Stand Circ* 48:34-93 '16

- Thermal values of the fats and oils; the heat of bromination. J. W. Marden. *diags J Ind & Eng Chem* 8:121-6 F '16

See also Animal heat

Calorizing

- Calorizing as applied to power plant equipment. *il Met & Chem Eng* 15:498-9 O 15 '16
 Insuluminum soot-blower caps. *Power* 43:45 Ja 11 '16

Calumet & Arizona mining company

- Calumet & Arizona smelter. *Eng & Min J* 102:663 O 7 '16

- Data of the mines composing the Calumet & Arizona group. *Eng & Min J* 102:723 O 14 '16

- Flow-sheet of Calumet & Arizona smelter. *Met & Chem Eng* 15:483 O 15 '16

Calumet & Hecla mining company

- Semicentennial celebration, July 15. *Eng & Min J* 101:1122-3 Je 24 '16

Calycanthus occidentalis

- Volatile oil of *calycanthus occidentalis*. C. C. Scalione. *J Ind & Eng Chem* 8:729-31 Ag '16

Cambridge, Ohio**Water supply**

- Reconstruction of the municipal water works. W. J. Sherman. *Boston Soc C E J* 3:189-201 My '16

Camden, New Jersey**Fire department**

- Camden's all-motor fire department. *il Munic J* 41:213-15 Ag 24 '16

Railroads

- Grade crossing elimination in Camden. *il map Ry Age* 61:69-72 Jl 14 '16

Cameos

- How to value gems. E. Freund. *Sci Am S* 81:335-6 My 20 '16

Cameras

- Camera that photographs birds on the wing. *il Sci Am* 115:393 O 28 '16

- Double-negative camera which reproduces images in natural colors. *il Sci Am* 114:471+ My 6 '16

Manufacture

- Kodak manufacturing kinks. C. L. Lucas. *il diags Mach* 22:1029-31 Ag '16

Camp fires

- How to build a camp fire. *il Am For* 22:298-9 My '16

Camp sanitation

- Camp sanitation in United States. H. L. Alt. *Dom Eng* 77:257-8 N 25 '16

- Sewage-treatment works for Altamont. Y. W. C. A. camp. H. W. Taylor. *il Eng N* 74:1219-20 D 23 '15

Campanile, Berkeley

- Campanile at Berkeley is completed. *il (cover) Eng Rec* 74:627 N 18 '16

Camphor

- To produce synthetic camphor. *Textile World* 51:161 D 11 '15

Camping

- See also Camp fires; Camp sanitation; Tents*

Camps

- Equipment of camps in Maine woods. *il Metal Work* 85:850-2 Je 23 '16

Camps, Construction. See Construction camps**Camps, Labor. See Labor camps****Camps, Military**

- Concrete slabs for military camps. *diags Concrete* 9:58 Ag '16

- Construction of Camp Borden, Ontario. *Engineer* 122:193 S 1 '16

- Impressions of a great Canadian training camp. *Sci Am* 115:472 N 25 '16

- Passing of the tented city; how the aeroplane scout has affected the military camp. E. C. Crossman. *il Sci Am* 115:10+ Jl 1 '16

- Providing water-supply for a large militia camp. *il map Eng N* 76:498-503 S 14 '16

- With the 22d corps of engineers at Camp Whitman. R. K. Tomlin, jr. *il Eng Rec* 74:4-9 Jl 1 '16

Cams

- Application of double wedge to die work. M. Terry. *diags Mach* 22:604 Mr '16

- Design of mushroom cams. *Horseless Age* 37:246, 364 Mr 15, My 1 '16

- Spring pressure for constant acceleration cams. *chart Horseless Age* 37:119 F 1 '16

Canada

See also Roads—Canada

Industries and resources

- Markets for Eastern-Canada ores. G. C. Bateman. *Eng & Min J* 101:597-8 Ap 1 '16

See also Electric industries—Canada;

- Mines and mineral resources—Canada; Petroleum—Canada; Water power—Canada*

Canada—Continued

Railroads

See Railroads—Canada

Canadian mining institute

18th annual meeting, Ottawa, Mar. 1-3. Eng & Min J 101:490 Mr 11 '16; Met & Chem Eng 14:323-8 Mr 15 '16

Canadian Northern railroad

Canadian Northern extension to Vancouver. V. J. Boland. il map Ry Age 60:210-12 F 4 '16

Tunnel drill carriages—their economic possibilities. S. P. Brown. il diag map Eng Rec 73:38-42 Ja 8 '16

Canadian Pacific railway

Construction of the Rogers Pass tunnel. J. G. Sullivan. diag plans map Ry R 58:697-700 My 20 '16; Same cond. Eng & Contr 46:152-4 Ag 16 '16

Passenger station at Quebec, Canadian Pacific Ry. il Ry R 59:546-8 O 21 '16

25th annual report for year ended June 30, 1916. Ry Age 61:396-7, 436-8 S 8 '16

Canadian society of civil engineers

30th annual meeting, Montreal, Jan. 25-27. Eng N 75:269-70 F 10 '16

Canal locks. See Locks (canals and rivers)

Canal Zone. See Panama Canal Zone

Canals

Blasting a canal through a river bottom. O. R. Geyer. il Sci Am 114:479 My 6 '16

Cheaper to build the new than maintain the old; deep-water channel from Sacramento, Cal., to the sea. Eng Rec 74:431 O 7 '16

Completion of Lake Washington canal. G. C. Dohm. il map Int Marine Eng 21:416-20 S '16

Portable concrete plant builds Louisville and Portland canal wall. il diag map Eng Rec 73:522-4 Ap 15 '16

Unusual slide of canal lining and its repair. il diag Eng N 76:1031-4 N 30 '16

See also Aqueducts; Irrigation canals; Waterways; also names of canals, e.g. New York state barge canal, Panama canal, Welland ship canal

Locks

See Locks (canals and rivers)

France

Completion of the Rhone-Marseilles canal. Sci Am 114:524 My 20 '16

Giant among tunnels; where the Marseilles canal goes through the mountain. il diag map Sci Am 115:478-9 N 25 '16

Tunnel for Marseilles canal largest in world. il Eng N 76:1013-14 N 30 '16

Canals, Drainage. See Drainage

Canals, Irrigation. See Irrigation canals

Cancer

Campaign against cancer in New England. Sci Am 114:149 F 5 '16

Cancer—a disease of many forms. Sci Am S 81:3 Ja 1 '16

Candy

Central America as an export field. G. Harris and others. U S Bur For & Dom Com 113: 192 '16

Canned food

Inspection of canned foods. W. D. Bigelow. J Ind & Eng Chem 8:1005-9 N '16

Tin in canned foods. W. D. Bigelow. J Ind & Eng Chem 8:813-15 S '16

See also Canning and preserving; Meat extracts

Canneries

Electricity in canning factories. il Elec R & W Elec'n 69:278-80 Ag 12 '16

Canning and preserving

Grading industries. E. S. Wiard. Met & Chem Eng 14:579 My 15 '16

See also Bar-le-Duc; Canned food; Food preservation; Food preservatives; Jelly

Canopus

Sidereal center; considerations tending to indicate that canopus occupies this position. O. R. Walkey. diag Sci Am S 81:386-7+ Je 17 '16

Cantilever bridges. See Bridges, Cantilever

Canvas

Painting cotton duck. Textile World 51:272 D 25 '15

Waterproof covering for ceilings. il Textile World 51:1005 F 5 '16

Waxing of fabrics. Textile World 51:366 Ja 1 '16

Canvas tubes. See Tubes, Canvas

Caoutchouc. See Rubber

Capillarity

Apparatus for the determination of the surface tension at the interface between two liquids. W. D. Harkins and E. C. Humphery. diag Am Chem Soc J 38:236-41 F '16

Capillarity and soap films. diag Sci Am S 81: 409 Je 24 '16

Constitution of liquids with especial reference to surface tension phenomena. I. Langmuir. Met & Chem Eng 15:468-70 O 15 '16

Drop weight method for the determination of surface tension. W. D. Harkins and E. C. Humphery. Am Chem Soc J 38:228-36 F '16

Properties of mixed liquids. J. L. R. Morgan and C. E. Davis. Am Chem Soc J 38:555-68, 844-57 Mr-Apr '16

Simple apparatus for the accurate and easy determination of surface tension, with a metal thermoregulator for the quick adjustment of temperature. W. D. Harkins and F. E. Brown. il diag Am Chem Soc J 38: 246-52 F '16

Surface-tension at the interface between two liquids. W. D. Harkins and E. C. Humphery. Sci Am S 81:235 Ap 8 '16

Surface tension at the interface between two liquids, and the effect of acids, salts and bases upon the interfacial tension. W. D. Harkins and E. C. Humphery. Am Chem Soc J 38:242-6 F '16

Technical applications of capillary and electrocapillary chemistry. W. C. M. Lewis. Met & Chem Eng 15:253-9 S '16

See also Brownian movements

Bibliography

Colloids and surface tension. J. Cunningham. Mo U Bul 8:44-51 Ja '16; Same. Am Inst Min E Bul 115:1131-6 Jl '16

Capital

Working capital. W. J. Norton. Am Inst E E Pro 34:2149-53 S '15; Discussion. 35:247-51 F '16

See also Investments

Capital (accounting)

Idea of capitalization as applied to public service corporations. J. Bauer. J Account 22:1-9 Jl '16

Capitals. See Ottawa, Ontario; Washington, D. C.

Capitol buildings. See Ottawa, Ontario; United States—Capitol

Car. See Cars

Car and locomotive painters' association, Master. See Master car and locomotive painters' association

Car builders' association, Master. See Master car builders' association

Car cleaning

Passenger car cleaning and sanitation. E. P. Marsh. Ry Mech Eng 90:579-80 N '16

Terminal car cleaning yards. R. N. Miller. Ry Mech Eng 90:357-8 Jl '16

Terminal cleaning of passenger cars. J. E. Ross. Ry Mech Eng 90:297-8 Je '16

Car couplings

Brakes, couplers and other safety devices. il Elec Ry J 48:640-2 S 30 '16

Coupling-pin fasteners. R. W. Mayer. diag Coal Age 70:18-19 Jl 1 '16

Murray Keyoke. il Ry Age 60:68-9 Ja 14 '16; Same. Ry Mech Eng 90:47 Ja '16

New M. C. B. experimental couplers. diag Ry Age (Mech ed) 89:622-3 D '15

Switching cars by magnetic coupling. diag Sci Am 115:18 Jl 1 '16

Car curtains

Acme enclosed groove curtain fixtures. diag Ry Age 61:296-7 Ag 18 '16; Same. Ry Mech Eng 90:482 S '16

Car curtains—Continued

Development of the automatic car curtain. W. H. Forsyth. *il Elec Ry J* 47:133-4 Ja 15 '16

Car doors

Box car door lock. *il Ry Age* 61:556 S 29 '16; *Ry Mech Eng* 90:549 O '16

Car body from an operating standpoint. *il diags plans Elec Ry J* 48:572-84 S 30 '16

Door engines of the latest 250 New York municipal cars. *il diags Elec Ry J* 48:195-7 Jl 29 '16

Doors, seats and miscellaneous interior equipment. *il diag Elec Ry J* 48:613-17 S 30 '16

National car door. *diags Ry R* 59:251-2 Ag 19 '16; *Ry Age* 61:556-7 S 29 '16; *Ry Mech Eng* 90:537-8 O '16

Car fenders

Dipping equipment reduces cost of painting fenders. H. C. Ebeling. *il Elec Ry J* 48:321 Ag 19 '16

Interlocking fenders and collision buffers. *il diag Ry Mech Eng* 90:411-12 Ag '16

Car ferries

Car ferry in New South Wales. J. J. C. Bradfield. *diags Elec Ry J* 47:868-9 My 6 '16

Train ferry for New Orleans. *Diag Engineer* 122:322-3 O 13 '16

Car heating

Forced-ventilation electric heater. *il Elec Ry J* 48:899-900 O 21 '16

Heating and ventilation of urban cars. H. A. Abell. *Elec Ry J* 47:405-6 F 26 '16

Heating, ventilation and lighting. *il diags Elec Ry J* 48:602-12 S 30 '16

Hot-water heater for steel interurban cars. *il diag Elec Ry J* 48:458 S 9 '16

New features in electric car heaters. *il Elec Ry J* 47:574 Mr 18 '16

Operating cost of forced draft heaters less than 2 mills per car-mile. *Elec Ry J* 46:1225 D 18 '15

Recent heater installation on New York subway cars. *il Elec Ry J* 47:180 Ja 22 '16

Car houses

Bay State carhouse at Lowell, Mass. *il diag Elec Ry J* 47:198-201 Ja 29 '16

Carhouse design and construction. C. F. Bedwell. *Elec Ry J* 47:209-10 Ja 29 '16

Two-story concrete car barn in Vancouver designed with steel columns. *il diags plan Eng Rec* 74:584-5 N 11 '16

See also Car inspection

Car inspection

Car department problems; training car inspectors. E. E. Griest. *Ry R* 59:322-3 S 2 '16

Car inspector and his job. *Ry Mech Eng* 90:85-6, 451-2 F, S '16

Chief interchange car inspectors' and car foremen's association 18th annual convention. *Ry Age* 61:652-7 O 13 '16; *Ry Mech Eng* 90:571-80 N '16

Doctor of cars. G. C. Slarrow. *Ry Age (Mech ed)* 89:628-9 D '15

How to develop the car inspector; symposium. *Ry Mech Eng* 90:305-6 Je '16

Making efficient car inspectors. H. D. Wolcomb. *Ry Mech Eng* 90:31-2 Ja '16

Making good car inspectors. C. S. Taylor. *Ry Age (Mech ed)* 89:624-5 D '15

Passenger terminal inspection. R. S. Mounce. *diag Ry Mech Eng* 90:239-41 My '16

Qualifications and training of car inspectors. M. F. Cox. *Ry Mech Eng* 90:181 Ap '16

Why it is hard to get good car inspectors. J. H. Harrigan. *Ry Age (Mech ed)* 89:627-8 D '15

Work of the car inspector. W. F. Mandrell. *Ry Mech Eng* 90:353-4 Jl '16

Car interchange. *See Freight cars, Interchange of***Car lighting**

Applications of the amperehour meter. S. Lynn. *il diags Sibley J* 30:223-5 Ap '16

Car-lighting improvements and costs on the Los Angeles railway. J. L. Clarke. *il diags Elec Ry J* 48:107 Jl 15 '16

Electric lighting of railway passenger cars; abstracts. *Ry R* 57:696-9 N 27 '15; *Ry Age (Mech ed)* 89:620-2 D '15

Heating, ventilation and lighting. *il diags Elec Ry J* 48:602-12 S 30 '16

Lighting of interurban cars. A. H. S. Cantlin. *Elec Ry J* 47:87 Ja 8 '16

Lighting of interurban cars. D. V. Gelder. *Elec Ry J* 47:41 Ja 1 '16

Railway car lighting; abstract. G. H. Hulse. *Elec R & W Elec'n* 69:718 O 21 '16

Rating of train lighting lamps; report of A. R. E. E. committee. *Ry Age* 61:842 N 10 '16

Recent improvements in the electric lighting of steam railroad cars. R. C. Lanphier. *il diags Am Inst E E Pro* 34:1829-46 Ag '15; Discussion. 35:222-4 F '16

Car lines, Private. *See Private car lines***Car load.** *See Freight car service—Car load***Car painting**

Accelerated drying of paint on passenger coaches, Pennsylvania railroad. *il Ry R* 58:597-9 Ap 29 '16

Baking paint on steel cars. *il Ry Age* 60:846 Ap 14 '16; Same. *Sci Am S* 81:391 Je 17 '16

Dipping equipment reduces cost of painting fenders. H. C. Ebeling. *il Elec Ry J* 48:321 Ag 19 '16

Master car and locomotive painters' association 47th annual convention. *il Ry Age* 61:499-505 S 22 '16; *Ry Mech Eng* 90:515-24 O '16

Painting and finishing the steel passenger coach. H. M. Clarence. *Ry R* 59:212-13 Ag 12 '16

Protection of car finishes. C. F. Woods. *Elec Ry J* 47:91-2 Ja 8 '16

Car resistance. *See Train resistance***Car roofs**

Christy insulated steel car roof. *il diags plan Ry R* 58:147 Ja 22 '16

Treated car roofing. *Elec Ry J* 47:95 Ja 8 '16

Ureco box car roof. *diags Ry R* 58:342 Mr 4 '16

X. L. A flexible car roof. *il Ry R* 58:837-8 Je 10 '16

Car sanitation

Sanitation of railway passenger cars. T. R. Crowder. *Ry Age* 60:945-7 Ap 28 '16; Excerpts. *Ry Mech Eng* 90:241-2 My '16

See also Car cleaning; Car ventilation

Car seats

Doors, seats and miscellaneous interior equipment. *il diags Elec Ry J* 48:618-20 S 30 '16

Sanitary covers preserve car seat backs. F. E. Fisher. *il Elec Ry J* 47:322 F 12 '16

Simplex coach seat. *il Ry Mech Eng* 90:538 O '16

Car service officers, Central and western association of. *See Central and western association of car service officers***Car shops.** *See Electric railroads—Shops; Railroads—Shops***Car shortage.** *See Freight car service***Car stop**

Car stop of novel design for use in yard tracks. *diags Coal Age* 8:1015 D 18 '15; Same. *Eng N* 74:1123 D 9 '15

Car trucks

Cast steel side frame with re-entrant flanges. *diags Ry Age* 59:1099 D 10 '15; Same. *Ry Age (Mech ed)* 89:645 D '15

Design of steel passenger equipment. V. W. Zilen. *diags Ry Age (Mech ed)* 89:625-7 D '15

Four wheel trucks for passenger cars. R. V. Wright. *diags Ry Age (Mech ed)* 89:569-74 N '15; Same. *Ry Age* 59:1055-8 D 3 '15; Same. *Am Soc M E J* 38:211-13 Mr '16; Discussion. *Am Soc M E J* 38:213-15 Mr '16; Same cond. *Ry Mech Eng* 90:27-9 Ja '16; Same cond. *Ry Age* 59:1133-4 D 17 '15

Fox type pressed steel pedestal trucks for cars and locomotive tenders. *diags Ry R* 58:890-2 Je 17 '16

Improvements in standard truck construction. *il Elec Ry J* 48:736-7 O 7 '16

Novel pull-in truck. E. Wright. *il Elec Ry J* 48:148 Jl 22 '16

Overhauling of old-style M. C. B. trucks. *il Elec Ry J* 48:986 N 4 '16

Trucks, wheels, axles and gearing. *il diags Elec Ry J* 48:628-35 S 30 '16

See also Car wheels; Draft gears

Car ventilation

- Car ventilation ideas. R. N. Hemming. *Elec Ry J* 47:1049-50 Je 3 '16
 Heating, ventilation and lighting. *il diags Elec Ry J* 48:602-12 S 30 '16
 Ventilation of sleeping cars; comparative tests of various types of exhaust ventilators. T: R. Crowder. *Am Soc Heat & V E* 21:274-97 '15; Same abr. *Ry Age (Mech ed)* 89:464-6 S '15; Discussion. *Am Soc Heat & V E* 21:297-300 '15

Car wheels

- Car wheel flange design. G: W. Lyndon. *diags Ry R* 58:912-13 Je 24 '16
 Car wheel indicator. *diag Mach* 22:426 Ja '16
 Cast-steel wheel with manganese tread and flange. *il Elec Ry J* 48:69-71 Jl 8 '16
 Casting car wheels by new method. *il Iron Tr R* 59:472-7 S 7 '16
 Casting car wheels with manganese treads. *il Foundry* 44:456-60 N '16
 Cause of slid flat wheels. W. V. Turner. *diags Ry Mech Eng* 90:247-8 My '16
 Change in wheel flange reduces noise and wear. *diag Elec Ry J* 48:240 Ag 5 '16
 Control of chill in cast iron, considering the elements effective in the manufacture of malleable castings and chilled car wheels. G. M. Thrasher. *il Am Inst Min E Bul* 106:2129-38 O '15; Same. *Foundry* 43:491-3+ D '15; Same. *Iron Tr R* 57:1171-3+ D 16 '15; Same cond. *Iron Age* 97:550-2 Mr 2 '16
 Foreign specifications for railway material; rails, wheels, axles, tires. G. K. Burgess and P. D. Merica. *diags U S Bur Stand Tech Pa* 61:1-132 '16
 Inspecting cast iron wheels under freight equipment. J. P. Yaeger. *Ry Mech Eng* 90:30-1 Ja '16
 Making car wheels at the Lenoir car works. G. S. Evans. *Foundry* 43:351-3, 428-31, 435-9; 44:19-23 S-N '15, Ja '16
 Railroad wheels that are practically silent. *il Sci Am* 114:175 F 12 '16
 Report of the standing committee of the Master car builders' association on car wheels. *Ry R* 58:910-12 Je 24 '16
 Tests of Davis car wheel. *Iron Tr R* 59:827 O 26 '16
 Trucks, wheels, axles and gearing. *il diags Elec Ry J* 48:628-35 S 30 '16
 Wheel turning operation improved. *il Elec Ry J* 48:984 N 4 '16
 Work of the Association of manufacturers of chilled car wheels; presidential address. G: W. Lyndon. *Ry R* 59:542-3 O 21 '16; Same. *Iron Age* 98:947 O 26 '16; Same cond. *Ry Age* 61:801 N 3 '16; Same cond. *Ry Mech Eng* 90:570 N '16

Car windows

- Coach window raiser. C. C. Leech. *diag Ry Mech Eng* 90:358 Jl '16

Carbide lamps. See Acetylene lamps**Carbohydrates**

- Specificity of proteins and carbohydrates. E: T. Reichert. *Sci Am S* 81:226-7 Ap 8 '16
 See also Sugars

Carbolic acid

- Carbolic acid manufacture in Germany; abstract. F. Raschig. *Met & Chem Eng* 15:415 O 1 '16
 Mechanical engineering of a synthetic phenol plant. F: Pope. *diags Met & Chem Eng* 15:185-92 Ag 15 '16
 Phenol coefficient of germicides. F. B. Kilmer, A. W. Clark and P. Hampton. *J Ind & Eng Chem* 8:45-7 Ja '16
 Properties of mixed liquids; phenol-water and triethylamine-water mixtures. J. L. R. Morgan and G. Egloff. *Am Chem Soc J* 38:844-57 Ap '16

Carbon

- Color temperature scales for tungsten and carbon. E. P. Hyde, F. E. Cady, and W. E. Forsythe. *J Fr Inst* 181:418-20 Mr '16
 Determination of carbon in steels and irons by direct combustion in oxygen at high temperatures. J. R. Cain and H. E. Cleaves. *diags U S Bur Stand Tech Pa* 69:1-10 '16; Same. *J Ind & Eng Chem* 8:321-4 Ap '16
 Determining carbon in steel by combustion. J. W. Barbey. *il Iron Age* 98:1053 N 9 '16

- Effect of carbon on the physical properties of heat-treated carbon steel. J. H. Nead. *il Am Inst Min E Bul* 108:2341-57 D '15; Discussion. 113:943-6 My '16

- Effect of water upon carbon. G. Warren. *Power* 44:488-9 O 3 '16; Same abr. *Sci Am S* 82:276 O 28 '16

- Rapid method for the accurate determination of total carbon in soils. R. M. Salter. *diag J Ind & Eng Chem* 8:637-9 Jl '16

See also Coal; Coke; Graphite

Carbon brushes. See Brushes (electric machinery)**Carbon dioxide**

- CO₂ available with fuels of varying hydrogen. V: J. Azbe. *Power* 43:543 Ap 18 '16
 CO₂ chart from Cleveland plant. C: H. Bromley. *il Power* 44:747-8 N 28 '16
 Determination of carbonic acid, combined and free, in solution, particularly in natural waters. J: Johnston. *Am Chem Soc J* 38:947-75 My '16
 Ground water supplies treated for carbon dioxide removal in New Jersey. F. E. Daniels. *Eng & Contr* 45:47-8 Ja 12 '16
 How much CO₂ to expect. A. T. Hutchins. *Power* 43:262 F 22 '16
 Methods for the determination of carbon dioxide and a new form of absorption tower adapted to the titrimetric method. E. Truog. *diag J Ind & Eng Chem* 7:1045-9 D '15
 Operating the carbon-dioxide refrigerating machine. F. T. Flenniken. *il diags Power* 43:903-5 Je 27 '16
 Rapid method for the determination of carbon dioxide. W. H. Waggaman. *diag J Ind & Eng Chem* 8:41 Ja '16
 Specific conductivity of pure water in equilibrium with atmospheric carbon dioxide. J. Kendall. *Am Chem Soc J* 38:1480-97 Ag '16
 Table for values of carbon in carbon dioxide. H. Loomis. *J Ind & Eng Chem* 8:637 Jl '16
 See also Boilers—Testing

Carbon dioxide recorders

- Automatic oxygen carbon monoxide and carbon dioxide recorders. *il diags Met & Chem Eng* 15:542-4 N 1 '16
 Dwight CO₂ indicator. *il Power* 43:725-6 My 23 '16
 Instruments for recording carbon dioxide in flue gases. J. F. Barkley and S. B. Flagg. *bibliog il diags U S Bur Mines Bul* 91:1-54 '16
 Monoxide mono recorder. F. D. Harger. *il J Ind & Eng Chem* 8:1035-7 N '16
 Pocket-size carbon dioxide indicator. *il Iron Age* 97:544-5 Mr 2 '16; *Power* 43:351 Mr 14 '16; *Am Gas Light J* 104:221 Ap 3 '16; *Eng & Min J* 101:647 Ap 8 '16
 Test for carbon dioxide in fuel gas can be taken in 2½ minutes with pocket indicator. *diags Am Gas Light J* 105:291 O 30 '16

Carbon monoxide

- Beware of petromortis. C. D. Enfield. *Horseless Age* 37:123 F 1 '16
 Carbon monoxide a poisonous gas. *Automobile* 34:466-7 Mr 9 '16
 Carbon-monoxide poisoning. *Coal Age* 9:548 Mr 25 '16
 Carbon-monoxide poisoning. A. F. Knoefel. *Coal Age* 9:429 Mr 4 '16
 Gasoline mine locomotives in relation to safety and health. O. P. Hood and R. H. Kudlich. *bibliog il diags U S Bur Mines Bul* 74:1-78 '15; Excerpts (CO gas). *Automobile* 34:313 F 17 '16
 Monoxide mono recorder. F. D. Harger. *il J Ind & Eng Chem* 8:1035-7 N '16
 Petromortis experiences. C. F. Smith. *Automobile* 34:596 Mr 30 '16
 Use of copper oxide for fractionation combustion of hydrogen and carbon monoxide in gas mixtures. G: A. Burrell and G. G. Oberfell. *diag J Ind & Eng Chem* 8:228-31 Mr '16

Carbon tetrachloride

- German experiments on carbon tetrachloride as an insulating fluid. *Sci Am S* 82:355 D 2 '16

Carbonates

Determination of carbonic acid, combined and free, in solution, particularly in natural waters. J. Johnston. *Am Chem Soc J* 38:947-75 My '16

See also Barium carbonate; Calcium carbonate

Carbonic acid. See Carbon dioxide**Carborundum**

Construction of furnaces of the surface combustion type. N. Latta. *Am Gas Light J* 105:178 S 15 '16

Carboxyls

Reactions of some carboxyl derivatives of trimethylene. D. A. Hahn. *Am Chem Soc J* 38:1517-34 Ag '16

Carbureters

Ball & Ball carbureter. *diag Automobile* 35:243-4 Ag 10 '16

Carburetor as a vaporizer. P. S. Tice. *diags Horseless Age* 37:120-1, 155-7 F 1-15 '16

Carburetor investigations. *diag Horseless Age* 37:346 My 1 '16

Carbureters classified. *diags Automobile* 33:1083-90 D 16 '15

Carbureters meet V-motor requirements. *Automobile* 33:1180 D 30 '15

Carburetion. E. E. Dean. *Power* 44:112-13 J1 18 '16; Same. *Sci Am* S 82:247 O 14 '16

Carburetion with different grades of fuel. E. N. Percy. *Power* 44:560-2 O 17 '16

Cars for Egypt must have special carbureters. *Automobile* 34:184 Ja 27 '16

Difficulties to be met in kerosene carburetion. E. H. Sherbondy. *Automobile* 34:633-4 Ap 6 '16

Effect of compensating jet; how the Zenith carburetor operates. V. R. Heffler. *diag Automobile* 34:852-3 My 11 '16

Eynon heavy-fuel carburetor uses electric heat. *diags Automobile* 35:401 S 7 '16

French adopt uniform carburetor. *Automobile* 35:212-+ Ag 10 '16

Great kerosene activity in England. A. L. Clayden. *diags Automobile* 35:404-5 S 7 '16

Improved Sunderland carburetor. *il diag Horseless Age* 38:525 J1 1 '16

Kerosene carburetor is impractical. C. R. Collins. *Horseless Age* 37:202 Mr 1 '16

Kerosene standard tractor fuel. *diag Automobile* 35:397 S 7 '16

Longuemare automatic carburetor. *il diag Horseless Age* 36:441 N 1 '15

Master carburetor. *Munic J* 41:497 O 19 '16

Paraffin for petrol engines. *il diags Engineer* 122:7 J1 7 '16

Plain facts about kerosene carburetors. V. W. Pagé. *diags Sci Am* 114:584-5-+ Je 3 '16

Precision and speed in carburetor making. *il Horseless Age* 38:304-5 N 1 '16

Problems of kerosene. A. L. Clayden. *diags Automobile* 34:573-6 Mr 30 '16

Stewart carburetor for Fords. *il diags Automobile* 34:779 Ap 27 '16

Sunderman mouse trap carburetor. *diags Automobile* 34:779-80 Ap 27 '16

Theory and practice of automobile carburetion. L. R. Lohr. *il diags Sibley J* 31:6-10 O '16

Tracing the why of carburetor parts. F. H. Ball and F. O. Ball. *Automobile* 34:762-5, 812-14 Ap 27-My 4 '16

See also Automobile engines; Automobiles—Feeding systems; Gas and oil engines

Card clothing

Cotton-spinning machinery industry. *U S Bur For & Dom Com misc ser* 37:85-90 '16

Card system in business

Card index handy for checking prices on small items. B. L. Lathrop. *Eng Rec* 74:272 Ag 26 '16

Card-indexing plant employees. H. S. Knowlton. *Power* 43:439 Mr 23 '16

Experience with a card consumers' ledger. W. E. Haseltine. *Am Water Works Assn J* 3:346-55 Je '16; Summary. *Eng Rec* 73:805 Je 17 '16

Keeping tabs on the power-plant equipment. W. Sailes. *il Power* 43:401-2 Mr 21 '16

See also Accounting; Files and filing (documents); Municipal records

Carding, Cotton. See Cotton carding**Carding machines**

Carding kapok. *diags Textile World* 51:2249 My 6 '16

Kapok—a new textile fibre; its manufacture and industrial applications. J. Boyer. *il diags Sci Am* S 81:120-1 F 19 '16

Cargo steamers. See Freight ships**Carhouses.** See Car houses**Caricatures and cartoons**

Animated cartoons in the making. *il Sci Am* 115:354 O 14 '16

Carillons

Carillons and chimes. W. W. Starmer. *Sci Am* S 82:122-3 Ag 19 '16

Carnegie institute of technology

Equipment for testing. W. Trinks. *il Iron Tr R* 58:652-5 Mr 23 '16

Carnegie steel company

Features of welfare work at Duquesne, Pa. *il Iron Age* 97:193-6 Ja 20 '16

Carnotite

Experiments on the concentration of radium in carnotite ores. A. G. Loomis and H. Schlundt. *J Ind & Eng Chem* 8:990-6 N '16

Experiments on the separation of vanadium from crude sodium uranate. H. H. Barker and H. Schlundt. *Met & Chem Eng* 14:18-23 Ja 1 '16

Extraction and recovery of radium, uranium and vanadium from carnotite. C. L. Parsons and others. *il U S Bur Mines Bul* 104:1-124 '15; Abstracts. *Eng & Min J* 100:964 D 11 '15; *Met & Chem Eng* 13:965; 14:51-3 D 15 '15- Ja 1 '16; *J Ind & Eng Chem* 8:48-53 Ja '16

Radium from carnotite. H. Schlundt. *Eng & Min J* 102:550 S 23 '16

Carotin

Detection of natural and artificial pigments in oleomargarine and butter. L. S. Palmer and W. E. Thrun. *J Ind & Eng Chem* 8:614-18 J1 '16

Carpinthian mountains

Carpinthians. *il map Sci Am* S 82:101-3 Ag 12 '16

Carpenters' square. See Square (instrument)**Carpentry**

Average day's work for the carpenter. *Bldg Age* 38:61-2 Je '16

Bevels for rafters and hoppers. A. Cole. *diags Bldg Age* 38:39-41 My '16

Little geometry for the carpenter. W. S. Wilkin. *diags Bldg Age* 38:64-6 My '16

See also Building; Cabinet work; Doors; Floors; Lathes; Roofs; Scaffolding; Shingling; Square (instrument); Stair building; Stairways; Wall board; Woodwork; Wood-working machinery; Workbenches

Carpets

Carpet wools find new uses. *Textile World* 51:632 Ja 15 '16

Carriers

See also Commerce; Demurrage; Electric railroads; Merchant marine; Railroads; Shipping; Steamboat lines; Street railroads; Transportation

Cars

Aluminum in passenger car construction. *Ry R* 58:307-8 F 26 '16

Car and locomotive orders in 1915. *Ry Mech Eng* 90:51 Ja '16

Car department problems. E. E. Griest. *Ry R* 59:321-4, 355-8 S 2-9 '16; Same cond. *Ry Mech Eng* 90:453-6 S '16; Same cond. *Ry Age* 61:406-7 S 8 '16

Car for a valuation party. *il plan Ry Age* 61:996 D 1 '16

Cars and locomotives ordered and built in 1915. *Ry Age* 59:1240-6 D 31 '15; *Ry R* 58:74-9 Ja 8 '16

Construction of steam and electric railroad cars; Census bureau's summary concerning the industry for 1914. *Ry R* 58:858-9 Je 17 '16; *Ry Age* 61:290 Ag 18 '16

Co-operation in designing cars. A. H. Lake. *Ry Mech Eng* 90:460 S '16

Cost of overlooking details. *Elec Ry J* 48:238-9 Ag 5 '16

Essential requirements and correct treatment of headlines. H. M. Baxter. *Ry Mech Eng* 90:580-1 N '16

Cars—Continued

Great Northern railway—new type of composite brake carriage. *il plan Engineer* 122: 416 N. 10 '16

Improvement in passenger car construction and design. K. F. Nystrom. *diags Ry R* 58: 470-3 Ap 1 '16; Same cond. *Ry Mech Eng* 90: 191-3 Ap '16

Interurban cars for Binghamton railway. *il Elec Ry J* 47:507-9 Mr 11 '16

Light-weight interurban cars. R. W. Palmer. *il plan Elec Ry J* 47:656-7 Ap 1 '16

South American railway instruction car. *il Engineer* 120:526-7 D 3 '15

Standard weights for electric cars. W. J. Clardy. *Elec Ry J* 48:283-4 Ag 12 '16

Suburban coaches for the Grand Trunk Ry. J. Coleman. *il diags Ry R* 58:467-9 Ap 1 '16

Suggestions for improvement in car design. C. H. Faris; C. E. Wood; D. Wood. *Ry Mech Eng* 90:347-8 J1 '16

See also Air brakes; Automobiles; Brake beams; Car cleaning; Car couplings; Car heating; Car houses; Car inspection; Car lighting; Car painting; Car roofs; Car trucks; Car wheels; Derailments; Draft gears; Dump cars; Dynamometer cars; Electric vehicles; Freight car service; Freight cars; Laboratory cars; Mine cars; Motor cars (railroad); Parlor cars; Refrigerator cars; Sleeping cars; Street cars; Tank cars; Wrecking cars

Bearings

Anti-friction bearings on main car journals. G. M. Cameron. *Elec Ry J* 46:1263-5 D 25 '15

Application of ball bearings to railway car journals. O. Bruenauer. *diags Elec Ry J* 47: 10-6-8 J1-10 '16

Aurora, Elgin & Chicago semicircular brass experience. W. J. Bowman. *diags Elec Ry J* 46:1128 D 4 '15

Car derailments, causes and a remedy. H. M. Perry. *diags Ry Age (Mech ed)* 89:619-20 D 15

Comparative friction test of two types of coal mine cars. P. E. Liebermann. *il diag Am Inst Min E Bul* 114:1057-65 Je '16; Excerpts. *Eng & Contr* 46:55 J1 19 '16; Discussion. *Am Inst Min E Bul* 118:1875-8 O '16

Finishing car journal brasses. *il Ry Mech Eng* 90:31 Ja '16

Fitting up car journal brasses. E. E. Griest. *Ry Mech Eng* 90:581 N '16

Illinois electric railways association discusses modern motors and anti-friction bearings. *Elec Ry J* 47:1125-8 Je 17 '16

Interchangeable ball-bearing journal box. O. Bruenauer. *il diags Elec Ry J* 48:541-2 S 23 '16

Preventing hot boxes on the New Haven. *Ry Mech Eng* 90:570 N '16

Results obtained with roller bearings on interurban cars. W. B. Voth and A. C. Metcalfe. *il diag Elec Ry J* 47:865-6 My 6 '16

Heating

See Car heating

Lighting

See Car lighting

Painting

See Car painting

Repair

Electric car maintenance. J. F. Layng. *Elec Ry J* 46:1251-2 D 25 '15

Numbering repair parts of cars. W. H. Hauser. *diags Ry Mech Eng* 90:237-8 My '16

Reinforcing high-speed interurban cars. W. J. Bowman. *il Elec Ry J* 46:1221-2 D 18 '15

Steel siding substituted for wood stiffens car. H. H. Buchmann. *il Elec Ry J* 47:569 Mr 18 '16

See also Cars, Steel—Repair; Freight cars—Repair; Railroads—Maintenance and repair; Railroads—Shops

Trucks

See Car trucks

Wheels

See Car wheels

Cars, Armored

Armored car for the use of the United States army. *il diag Ry R* 59:173-4 Ag 5 '16; *Ry Age* 61:242-4 Ag 11 '16

Armored car planned and built in four weeks. G. F. Paul. *il diag Sci Am* 115:243 S 9 '16

Cars, Caboose

Caboose cars for the Nashville Chattanooga & St. Louis Ry. *il Ry R* 58:627-9 My 6 '16

Caboose for Nashville, Chattanooga & St. Louis. *il plans Ry Age* 61:453-5 S 15 '16; Same. *Ry Mech Eng* 90:511-13 O '16

Improved caboose cars, Missouri, Kansas & Texas R. R. *diags Ry R* 59:177 Ag 5 '16

Cars (derrick)

See also Wrecking cars

Cars, Dynamometer. *See* Dynamometer cars

Cars, Electric. *See* Motor cars (railroad)—Storage battery

Cars, Freight. *See* Freight cars

Cars, Inspection of. *See* Car inspection

Cars, Kitchen. *See* Kitchen cars

Cars (line)

Interurban and work cars for the K. C., C. C. & St. J. Ry. J. N. Spellman. *il plan Elec Ry J* 47:1098 Je 10 '16

Line car for one-man operation. H. G. Throop. *il Elec Ry J* 48:364-6 Ag 26 '16

Roadway utility motor car. *il plan Elec Ry J* 48:150 J1 22 '16

Series-parallel switch on line car. H. M. Lloyd. *diag Elec Ry J* 47:461 Mr 4 '16

Cars, Mine. *See* Mine cars

Cars, Motor. *See* Motor cars (railroad)

Cars, Parlor. *See* Parlor cars

Cars, Refrigerator. *See* Refrigerator cars

Cars (section)

Maintenance of gasoline motor cars. M. E. Carroll. *Ry Age* 60:511-12 Mr 17 '16

Motor wheel for hand speeders. *il Ry R* 57:832-3 D 25 '15; *Elec Ry J* 47:137 Ja 15 '16; *Ry Age* 60:114 Ja 21 '16

Cars, Steel

All-steel cars for the Wilkes-Barre & Hazleton railway. *il plan Elec Ry J* 47:810-12 Ap 29 '16

All-steel center-entrance cars for interurban service. H. R. Fehr. *il Elec Ry J* 48:896-7 O 21 '16

All-steel fish car for the United States Bureau of fisheries. *il diags Ry R* 59:181-3 Ag 5 '16

All-steel passenger car for the South Indian railway. F. C. Coleman. *il Ry R* 57:817 D 25 '15

All-steel railway coaches for India. *diags plan Engineer* 122:364-6 O 27 '16

Boston & Maine steel coaches. *il diags Ry Mech Eng* 90:349-52 J1 '16; Same. *Ry Age* 61: 61-4 J1 14 '16

Canadian Northern steel frame passenger cars. *il diags Ry Age* 60:194-8 F 4 '16; Same. *Ry Mech Eng* 90:77-82 F '16

Car for the transportation of live fish. *il diag plan Ry Age* 61:116-17 J1 21 '16

Car weight reduced by steel construction. *il diags Elec Ry J* 48:1050-2 N 18 '16

Design of steel passenger equipment. V. W. Zilen. *diags Ry Age (Mech ed)* 89:459-61, 515-16, 625-7; 90:189-91 S-O, D '15, Ap '16

Life and maintenance of all-steel cars. M. K. Barnum. *il Ry Age* 60:389-94 Mr 3 '16; *Ry Mech Eng* 90:129-34 Mr '16

Manchester to Bury electrification. *il diags Engineer* 121:167-9, 176 F 25 '16

Modern methods of car building. R. V. Sawhill. *il plan Iron Tr R* 58:281-6 F 3 '16

Only the rich can be economical. *Ry Age* 61:272-3 Ag 18 '16

Preserving the life of steel cars. H. M. Clarence. *Ry Mech Eng* 90:408 Ag '16

Standards in passenger car construction, the Pullman co. *il diags Ry R* 59:477-82 O 7 '16

Steel cars for Michigan railway. *il plans Elec Ry J* 46:1154-8 D 11 '15

Steel passenger and freight cars. *Ry Mech Eng* 90:76 F '16

Steel passenger cars from a British viewpoint. *Eng N* 75:475 Mr 9 '16

Cars, Steel—Continued

Tables for determining the moment of inertia of rectangles. C. H. Faris. *Ry Mech Eng* 90:184 Ap '16

See also Freight cars, Steel

Painting

See Car painting

Repair

Jacking stall for steel car repairs. *diags Ry Mech Eng* 90:535 O '16

Cars, Tank. See Tank cars

Cars, Wrecking. See Wrecking cars

Cartlidge, Charles Hopkins, 1869-1916

Sketch. *por W Soc E J* 21:588-92 S '16

Cartography. See Maps

Cartridge cases

Cartridge cases of steel. E. C. Crossman. *il Sci Am* 114:478+ My '16

Commercializing cartridge case manufacture. *il diags Mach* 23:40-6 S '16

Ferracute dial feed attachment for cartridge cases. *il Mach* 22:343-4 D '15

Hg.-explosive shell cartridge cases. D. T. Hamilton. *il Mach* 22:320-9 D '15

Making cartridge cases on bulldozers and planers. D. T. Hamilton. *il diags Mach* 22:386-90 Ja '16

Manufacture of brass cartridge cases. G. C. Holder. *il Metal Ind n s* 14:147-50 Ap '16

Manufacture of cartridge brass. C. R. Barton. *diags Eng & Min J* 161:375-81 Je 3 '16

Manufacturing brass cartridge cases for 18 lb. shells. *Am Soc M E J* 38:181 F '16

Cartridges. See Bullets; Cartridge cases

Carty, John J., 1861-

Presentation of the Franklin medal to John J. Carty. *por J Fr Inst* 182:86-97 J '16

President of the American institute of electrical engineers. C. W. Price. *Eng N* 75:220-1 F 3 '16

Casa Grande national park

Mesa Verde and Casa Grande national parks. M. Daniels. *il Am For* 22:139-45 Mr '16

Cascade mountains

30-mile railway tunnel under the Cascade mountains. H. M. Chittenden. *il maps Eng N* 76:928-35 N 16 '16

Case hardening

Casehardening and casehardening compounds. *Mach* 22:750 My '16

Case hardening; method used by Chesapeake & Ohio railway. P. F. Duggan. *Ry Mech Eng* 90:535-6 O '16

Materials used in case hardening. R. A. Millholland. *Sci Am S* 82:89 Ag 5 '16

Process of case hardening. R. A. Millholland. *Sci Am S* 82:75 JI 29 '16

Sulphur and phosphorus in case-hardening compounds. *Mach* 22:845 Je '16

Tests indicate that gas may be used profitably for case-hardening of steel. C. M. Walter. *Am Gas Light J* 105:52 JI 24 '16

See also Steel, Hardening of

Casein

Comparison of methods for the determination of casein in milk. C. B. Hersey. *J Ind & Eng Chem* 8:335-6 Ap '16

Cash registers

Making thin wall ornamental brass castings. R. S. B. Wallace. *il diag Foundry* 44:474-6 N '16

Cassia

Constituents of oil of cassia. F. D. Dodge and A. E. Sherndal. *J Ind & Eng Chem* 7: 1055-6 D '15

Cassimere

Finishing all-wool and union cassimeres. *Textile World* 51:627 Ja 15 '16

Cast iron

Better gray-iron castings. H. M. Ramp. *Iron Age* 96:1468-9 D 23 '15; Same. *Foundry* 44: 88-90 Mr '16

Carbon in cast iron at different temperatures. E. Adamson. *Iron Age* 97:910 Ap 13 '16

Cast iron billets for repair shop use. W. Phillip. *diags Foundry* 44:119 Mr '16

Cast iron for explosive shells. *Sci Am S* 81:55 Ja 22 '16

Chemical and physical properties of foundry irons. J. E. Johnson, jr. *il Met & Chem Eng* 15:530-7, 588-97, 642-6 N 1-D 1 '16 (to be cont)

Chemical explanation of the effect of oxygen in strengthening cast iron. W. M. Johnson. *Am Inst Min E Bul* 110:233-5 F '16; Same. *Iron Age* 97:309 F 3 '16; Same. *Iron Tr R* 58:812-13 Ap 13 '16

Chilling sheave wheels. G. S. Evans. *Foundry* 44:476 N '16

Control of chill in cast iron, considering the elements effective in the manufacture of malleable castings and chilled car wheels. G. M. Thrasher. *il Am Inst Min E Bul* 106: 2129-38 O '15; Same. *Foundry* 43:491-3+ D '15; Same. *Iron Tr R* 57:1171-3+ D 16 '15; Same cond. *Iron Age* 97:550-2 Mr 2 '16; Excerpt (Natural chill of cast iron). *Met & Chem Eng* 13:39-40 Ja '15; Discussion. *Am Inst Min E Bul* 113:927-8 My '16

Correlation between tensile and bending tests of cast iron; abstract. W. H. Herschel. *Am Soc M E J* 38:344 Ap '16

Corrosion of steel and cast iron compared. R. C. McWane and H. Y. Carson. *il Foundry* 43:467-9 N '15; Same. *Iron Tr R* 58:141-3 Ja 13 '16

Evolution of the malleable process. J. P. Pero and J. C. Nulsen. *Iron Age* 96:1168-70 N 18 '15; Same. *Sci Am S* 82:54-5 JI 22 '16

Heat deteriorates cast iron. *Automobile* 35: 406-7 S 7 '16

In defense of semi-steel. Y. A. Dyer. *Iron Age* 97:673 Mr 16 '16

Introducing phosphorus into cast iron. G. S. Evans. *Foundry* 44:315-16 Ag '16

Manufacture and properties of semi-steel. D. McLain. *il Iron Age* 98:702-4 S 28 '16

Melting steel and gray iron in a cupola. D. McLain. *Iron Age* 97:781-2 Mr 30 '16

Normal fracture of malleable iron. E. Touceda. *il Iron Tr R* 59:575-7 S 21 '16; Same cond. *Iron Age* 98:576-7 S 14 '16

Paint-dipped iron castings. *Foundry* 44:34-5 Ja '16

Pin holes in gray iron castings. W. J. Keep. *Foundry* 44:18 Ja '16

Science testing of malleable and cast steel. A. Harley. *il Foundry* 44:61-7 F '16

Semi-steel; abstract. J. E. Hurst. *Am Soc M E J* 38:263-4 Mr '16

Semi-steel defended and attacked. Y. A. Dyer and R. Moldenke. *Iron Age* 97:542-4 Mr 2 '16; Abstract. *Am Soc M E J* 38:347-8 Ap '16

Steel scrap in various foundry mixtures. G. S. Evans. *il Iron Age* 97:1541-5 Je 29 '16; Abstract. *Am Soc M E J* 38:666 Ag '16

Thermal reactions of cast iron. T. Turner. *Iron Tr R* 59:732-4 O 19 '16; Abstract. *Am Soc M E J* 38:1032-3 D '16

Use to which malleable iron castings can be applied in car construction. F. J. Lanahan. *Iron Age* 98:935 O 26 '16

Wear of cast-iron cylinders and liners. *il Iron Age* 97:1492-4 Je 22 '16

Weights of solid octagonal iron castings. R. R. McGowan. *Foundry* 44:106a Mr '16; Correction. 44:134a Ap '16

What is gray iron? G. C. Davis. *Iron Age* 98: 1088 N 9 '16

See also Car wheels; Foundry practice; Iron; Iron founding; Iron metallurgy; Pig iron

Testing

Effect of sulphur in cast iron. *Iron Age* 96: 1551-2 D 30 '15

Liquid contraction in cast iron. G. Hailstone. *il diag Iron Age* 98:241-3 Ag 3 '16

Malleable iron; its characteristics, uses and abuses. E. Touceda. *il Iron Tr R* 58:495-8, 546-50 Mr 2-9 '16; Same cond. *Foundry* 44: 231-5 Je '16

Casting. See Foundry practice

Casting machines

Centrifugal machine for casting pipe. *il diag Iron Age* 98:506-9 S 7 '16; Same. *Metal Work* 86:342-5 S 15 '16; Abstract. *Am Soc M E J* 38:831 O 16 '16

Castings, Art

Art casting by a new process. R. G. Skerrett. *il Sci Am* 114:225 F 26 '16

Castings, Steel. See Steel castings

Cataloging

See also Files and filing (documents); Indexing

Catalogs

Proper arrangement of copy for catalogue composition. Inland Ptr 56:494-5 Ja '16

Catalysis

Catalysis in the formation of gasoline from kerosene. G. Egloff and R. J. Moore. Met & Chem Eng 15:67-9 J1 '16

Catalysis of hydrogen peroxide. G. Lemoine. Sci Am S 82:235 O 7 '16

Catalytic decomposition of hydrogen peroxide in certain nonaqueous solutions. J. H. Walton and D. O. Jones. diag Am Chem Soc J 38:1956-61 O '16

Rates of conversion of the stereoisomeric cinchona alkaloids into their toxins. H. C. Biddle. Am Chem Soc J 38:901-8 Ap '16

Reaction of both the ions and the nonionized forms of acids, bases and salts: the reaction of methyl iodide with sodium, potassium and lithium ethylates at 0°. B. M. Brown and S. F. Acree. Am Chem Soc J 38:2145-56 O '16

Silver salt of triiodophenol and its catalytic decompositions. G. H. Woollett. Am Chem Soc J 38:2474-8 N '16

Studies in the preparation of nitriles; the catalytic preparation of nitriles. G. D. Van Epps and E. E. Reid. Am Chem Soc J 38:2128-35 O '16

Studies on catalysis; the addition compounds of esters with organic acids. J. Kendall and J. E. Booge. Am Chem Soc J 38:1712-36 S '16

See also Colloids; Hydrogenation

Catch basins. See Sewerage—Catch basins**Catenary**

Plotting the catenary. R. C. Strachan. Eng N 76:1046 N 30 '16

Rectification of the catenary. F. R. Honey. Eng N 76:256 Ag 10 '16

Caterpillar tractors. See Tractors**Catgut**

Preparation of surgical catgut. Sci Am S 82:76-7 J1 29 '16

Cathedrals

Gothic architecture and its critics. A. D. F. Hamlin. il Arch Rec 39:338-54, 419-35; 40:97-113 Ap-My, Ag '16

See also Architecture, Gothic; also St. Peter's, Rome

Cathodes

Cathode starting sheets, patented by E. A. Guggenheim. diags Met & Chem Eng 14:165 F 1 '16

Catskill aqueduct

Bronze in Catskill aqueduct. A. D. Flinn. Sci Am S 82:263 O 21 '16

Bypass around leaky tunnel in Catskill aqueduct. C. A. Hirschberg. il diags Eng N 74:1108-9 D 9 '15; Same. Eng & Min J 101:260-1 F 5 '16

City tunnel of the Catskill aqueduct. W. E. Spear. il diags map Am Water Works Assn J 3:514-28 Je '16; Excerpts. Eng & Contr 46:31-2 J1 12 '16

Connecting Narrows siphon to Staten Island main. il diags Eng N 76:782-5 O 26 '16

Construction of the Kensico dam. il diags Engineer 121:5-6, 12 Ja 7 '16

Grouting an effective remedy for stopping leakage in tunnels and shafts. J. F. Sanborn. il diags Eng Rec 73:504-7, 549-51, 581-3 Ap 15-29 '16

Methods employed in grubbing the Kensico reservoir of the Catskill water supply works. G. A. Winsor. Eng & Contr 45:56-7 Ja 19 '16; Same. Eng Rec 73:92 Ja 15 '16

Recent completion of the Kensico reservoir. il Sci Am 113:522+ D 11 '15

Shore end of Narrows siphon built in open trench dredged to depth of 50 ft. il diags Eng Rec 73:552-4 Ap 22 '16

Tunnel grouting in Brooklyn end of Catskill aqueduct. O. W. Myers. il diags Eng N 76:196-200 Ag 3 '16

Underground magazines for the city tunnel Catskill aqueduct. diag Eng & Contr 44:452 D 8 '15

Unique equipment for the unwatering of New York city's great aqueduct. R. G. Skerrett. il Sci Am 114:443 Ap 29 '16

Wet concrete successfully dropped 660 feet into tunnel cars. G. J. F. Carey. diags Eng Rec 74:601-2 N 11 '16

Cattle guards. See Railroads—Cattle guards**Causeways**

Causeway at Corpus Christi is completed. il Eng N 75:628 Mr 30 '16

Corpus Christi causeway contains 2300 feet of reinforced-concrete girder spans. T. Bartlett. il diags map Eng Rec 73:390-2 Mr 18 '16

Effect of hurricane on Corpus Christi viaduct. il Eng N 76:815-16 O 26 '16

Galveston storm repairs. N. T. Blackburn. il Eng N 75:393-5 Mr 2 '16

Caustic soda. See Sodium hydroxide**Cavalry**

Our cavalry; the tactics of the mounted service of the world's armies are governed by principles established on our western plains. C. M. Maigne. il Sci Am 115:124+ Ag 5 '16

Caves

Building a cave at the American museum of natural history. W. L. Beasley. il Sci Am 114:470+ My 6 '16

Copper Queen cave in New York. W. L. Beasley. il Eng & Min J 102:379-80 Ag 26 '16

Ceanothus velutinus

Ceanothus velutinus (snow brush) as a source of wax and tannin. C. C. Scalione and H. S. Blakemore. il J Ind & Eng Chem 8:411-13 My '16

Cedar

Commercial uses of western red cedar. H. P. Wyckoff. il Am For 22:134-7 Mr '16

Oils of the coniferae; the leaf and twig, and bark oils of incense cedar. A. W. Schorger. J Ind & Eng Chem 8:22-4 Ja '16

Western red cedar; identification and characteristics. S. B. Detwiler. il Am For 22:131-4 Mr '16

See also Cigar-box wood

Cedar association, Northern white. See Northern white cedar association**Cedars Rapids, Quebec**

Cedars Rapids hydro-electric development. R. C. Muir. il diags map Gen Elec R 19:541-54 Je '16

Celite

High temperature insulation. P. A. Boeck. il Met & Chem Eng 14:228-9 F 15 '16; Same. J Ind & Eng Chem 8:374-5 Ap '16; Same cond. Am Soc M E J 38:639-40 Ag '16; Abstract. Power 43:307 F 29 '16

Cellars

Concrete cellar for combustible materials. P. H. Wilson. il Metal Work 84:754 D 10 '15

Cellars, Bomb-proof. See Bomb-proof cellars**Cellini, Benvenuto**

So-called house of Benvenuto Cellini in the Vicolo Cellini in Rome. E. Gugler. il Am Inst Arch J 4:341-5 Ag '16

Cellose

Optical rotatory powers of some acetylated derivatives of maltose, cellose and lactose. C. S. Hudson and R. Sayre. Am Chem Soc J 38:1867-73 S '16

Cells

Physiological importance of phase boundaries; a consideration of the physical and chemical systems concerned in living cells. W. M. Bayliss. Sci Am S 81:18-19, 42 Ja 8-15 '16

Celluloid

Use of celluloid in plastic surgery. C. Higgins. Sci Am S 82:319 N 11 '16

Celluloid, Substitutes for

Ernolith; a new celluloid substitute. Sci Am 114:623 Je 10 '16

Cellulose. See Guncotton**Cement**

Apparatus for burning cement and recovering the dust; patented by H. J. Seaman. Met & Chem Eng 15:360 S 15 '16

Chemical destruction of concrete structures and the search for a panacea. W. D'Roan. il Concrete 9:sup11-14 Ag '16

Cement—Continued

- Joint mortar exposed to tidal currents. J. L. Howard. Boston Soc C E J 3:27 Ja '16
- Portland cement. Sci Am S 81:311 My 13 '16
- Portland cement. G. A. Rankin. il J Fr Inst 181:747-84 Je '16; Same abr. Concrete 9:sup 23-7 S '16; Excerpts. Am Gas Light J 104:390-1+ Je 19 '16; Abstract. Am Soc M E J 38:591-2 Jl '16; Abstract. Met & Chem Eng 15:44-5 Jl 1 '16
- Practical chemistry and modern manufacture of Portland cement. G. P. Diekmann. Am Soc M E J 38:385-7 My '16; Excerpt. Met & Chem Eng 15:41-3 Jl 1 '16; Excerpt. Concrete 9:sup27-8 S '16
- Properties of the calcium silicates and calcium aluminates occurring in Portland cement; abstract. P. H. Bates and A. A. Klein. J Fr Inst 182:398-401 S '16
- Pulverized coal—its preparation and use in industrial furnaces. S. H. Harrison. diags Eng M 50:747-8 F '16
- Role of the chemist in the cement industry. C. N. Wiley. J Ind & Eng Chem 8:276-8 Mr '16
- Slag Portland cement; abstracts. B. J. Day. Engineer 121:181-2 F 25 '16; Sci Am S 81:203 Mr 25 '16
- Use of bulk cement in concrete products plants. D. W. King. Concrete Cem 7:211-12 D '15

See also Building materials; Cement gun; Cement plants; Cements; Concrete; Gae; Grouting; Gunite; Lime; Mortar

Cost

- Central America as an export field; comparative cost of American and German cement; table. G. Harris and others. U S Bur For & Dom Com 113:191 '16

Exhibitions

- Chicago cement show as an influence in up-building the industry. Concrete 8:97-8 Mr '16
- Chicago cement show most elaborate ever held. il Eng Rec 73:298-300 F 26 '16
- Chicago's ninth annual cement show, Feb. 12-19. il Bldg Age 38:55-8 Mr '16
- New goods seen at the cement show, Chicago. il diag. Bldg Age 38:72-8 Ap '16

Specifications

- British cement specification. Eng N 74:1123 D 9 '15
- Cement specifications adopted by the A. S. T. M. Eng N 76:43 Jl 6 '16; Concrete 9:36 Jl '16; Ry Age 61:18-19 Jl 7 '16
- Cement specifications of the A. S. T. M.—the changes made and the reasons therefor. R. J. Wig. Eng Rec 74:71-3 Jl 15 '16

Testing

See Cement testing

Cement, Effect of oil on

- Oil and Portland cement. Schumann. Concrete Cem 8:21 Ja '16

Cement association, Portland. *See* Portland cement association**Cement bags.** *See* Cement sacks**Cement gun**

- Cement-gun at the factory of the Ford motor co. Detroit. J. V. Schaefer. il Concrete 9:155-6 N '16
- Cement gun construction. il Munic Eng 49:242 D '15
- Cement gun for boiler settings. H. Roebuck. il Power 42:800 D 7 '15; Same. Eng & Min J 100:1051 D 25 '15
- Cement-gun for repairing coke ovens. il Am Gas Light J 104:29 Ja 10 '16
- Cement gun in mining work. Eng & Min J 102:179-80 Jl 22 '16; Same. Coal Age 10:230 Ag 5 '16
- Cement gun makes monolithic reservoir without forms. il Eng Rec 74:512 O 21 '16
- Coating steel at Grand Central terminal with cement gun. W. F. Jordan. il Eng N 75:1008-10 My 25 '16
- Cost of coating coal bunkers with a cement gun. Eng & Contr 46:369 O 25 '16
- Costs of applying mortar with the cement gun. Eng N 75:469 Mr 9 '16

- Data on the use of the cement gun. Concrete 8:216 My '16

Lining a steel conduit with cement gun, Baltimore water works. P. A. Beatty. Eng & Contr 46:237-8 S 13 '16

Lining ditches with cement gun. A. W. Collins. Eng N 75:950-1 My 18 '16

Mechanical jack-of-all-trades. Coal Age 10:26-7 Jl 1 '16

Preventing roof slacking. il Coal Age 10:702-3 O 28 '16

Season with the cement gun building revetment. W. G. Caples. Concrete 9:26-7 Jl '16

Waterproofing a concrete tank with the cement gun. N. F. Ambursen. il Eng N 75:1044 Je 1 '16

Wider uses of compressed air. H. F. Porter. il Factory 16:142-3 F '16

Cement handling

Gravity conveyors for unloading cement. diags Concrete 9:73 Ag '16

Cement industry and trade

Breaking into the cement industry. Concrete 9:sup6-8 Jl '16

Cement—a review of the year, 1915. R. W. Lesley. Concrete 9:sup33-7 O '16

Cement trade of Indo-China. L. P. Briggs. Concrete 9:sup28-9 S '16

Central America as an export field; best way to pack cement is in steel drums. G. Harris and others. U S Bur For & Dom Com 113:190-1 '16

German cement cartels during the war. Concrete 9:sup4-6 Jl '16

Cement kilns

Vertical kilns of an East Indian cement plant. il Concrete 9:sup48 N '16

Cement plants

Electric drive and its meaning to the cement industry. J. A. Randolph. il Concrete 9:sup 46-7 N '16

Electric drive in a cement plant. il Elec R & W Elec'n 68:189-91 Ja 29 '16

Electricity in cement manufacturing plants. A. C. Hewitt. il Elec R & W Elec'n 69:192-3 Jl 29 '16

Electrification of Portland cement plants. il Elec R & W Elec'n 69:628-31 O 7 '16

Houston plant of the Texas Portland cement co. made from oyster shells. H. Struckmann. il plan Concrete 9:sup15-16 Ag '16; Same cond. Eng N 76:230-1 Ag 3 '16

New cement plant at Duluth, for service of the northwestern states. Eng & Contr 45:256-7 Mr 15 '16

Portland cement manufacture—notes on English materials and methods. D. B. Butler. Concrete 9:sup1-4 Jl '16

Power plant of the Edmonton Portland cement co., Edmonton, Can. A. G. Christie. il diag plans Power 43:100-3 Ja 25 '16

Recent progress in electrical smoke precipitation. F. G. Cottrell. il Eng & Min J 101:390-1 F 26 '16

200-barrel cement plant to use clay and oyster shells. Concrete 9:sup30-1 S '16

Wet process mill for the Oregon Portland cement co., Oswego, Ore. D. C. Findlay. il diags Concrete 9:sup43-5 N '16

Safety devices and measures

Safeguarding of bins, hoppers and tanks. R. B. Hill. Concrete 9:sup17-18 Ag '16

Cement sacks

Cement bag cleaning plant. Eng & Contr 45:408 My 3 '16

Cost of cement sacks to the user. Concrete 8:181-2 Ap '16

Reducing cost of handling cloth bags. B. C. Downey. Concrete 8:250 Je '16

Cement sampling

Cement sampling and some cement peculiarities. B. Enright. Concrete 9:28 Jl '16

Cement storage

Conclusions from observation of Portland cement in storage. S. P. Baird. Munic Eng 50:61 F '16

Portable canvass storehouses for cement for roadwork. il Eng & Contr 45:404 My 3 '16

Precautions for cement storage. Concrete 9:96 S '16

Cement testing

- Cost of cement testing. F. H. Carter. Eng N 75:471-2 Mr 9 '16
House built with fifty-six varieties of cement. il Sci Am 114:454+ Ap 29 '16
See also Cement sampling

Cements

- Lutes and cements. S. S. Sadtler. Met & Chem Eng 14:197-200 F 15 '16; Same. Sci Am S 81:278-9 Ap 29 '16
Tests of high-temperature furnace cement. W. S. Quigley. Power 44:73-4 Jl 11 '16; Abstract. Iron Age 97:1383 Je 8 '16; Abstract. Metal Ind n s 14:264 Je '16; Abstract. Met & Chem Eng 14:714 Je 15 '16

Cements, Dental. *See* Dental cements**Center of gravity.** *See* Center of mass**Center of mass**

- Determining center of gravity and moment of inertia. H. B. Wrigley. Automobile 35:50 Jl 13 '16
To find the center of gravity of a section. diag Mach 22:804 My '16

Centering machines

- Pawling & Harnischfeger centering machine. il Mach 22:722 Ap '16

Central America

See also Latin America; Mines and mineral resources—Central America; also names of Central American countries, e.g. Costa Rica, Honduras

Commerce

- Central America as an export field. G. Harris and others. il map U S Bur For & Dom Com 113:1-229 '16
Return visit to the Central American republics. J. Clausen. Am Ind 16:26-8 Jl '16
Trade possibilities of Central America. E. Perry. Ind Management 52:249-54 N '16

Directories

- Trade directory of Central America and West Indies. U S Bur For & Dom Com misc ser 22:1-256 '15

Central and western association of car service officers

- Reclaim allowance for terminal switching between carrier roads under Per Diem rule 5 of the American railway association. Ry Age 61:850 N 10 '16

Central electric railway accountants' association

- 28th meeting. Detroit, Mich., Dec. 7-8. Elec Ry J 46:1168-70, 1213-14 D 11-18 '15
29th meeting. Toledo, June 13-14. Elec Ry J 47:1134-6 Je 17 '16

Central electric railway association

- Annual meeting. Dayton, O., Feb. 24-25. Elec Ry J 47:401-4 F 26 '16
Boat trip of C. E. R. A. Elec Ry J 48:23-4 Jl 1 '16
Central committees appointed. Elec Ry J 47:649-51 Ap 1 '16

Central power stations. *See* Electric plants (central stations)**Central railroad of New Jersey**

- Railroads' side of valuation, as handled on Jersey Central. C. W. Stark. diag Eng Rec 74:168-70 Ag 5 '16

Central station advertising. *See* Electric service companies—Advertising**Central station business.** *See* Electric service companies**Central station heating.** *See* Heating from central stations**Central station ice making.** *See* Ice—Manufacture**Central station management.** *See* Electric plants (central stations)—Management**Central stations.** *See* Electric plants (central stations)**Central supply association**

- 71st meeting. Chicago, June 22; with list of attendance. Dom Eng 76:33-4 Jl 1 '16
22d annual meeting. Chicago, Oct. 25. Dom Eng 77:116-19 O 28 '16

Centrifugal fans. *See* Fans, Mechanical**Centrifugal force**

- Application of centrifugal force to suspensions and emulsions. E. E. Ayres, Jr. Met & Chem Eng 14:500-2 My 1 '16
What is meant by centrifugal force. Mach 23:63 S '16

Centrifugal machines

- Centrifugal machine for casting pipe. il diag Iron Age 98:506-9 S 7 '16; Same. Metal Work 86:342-5 S 15 '16; Abstract. Am Soc M E J 38:831 O '16
Hollow poles of reinforced concrete made by centrifugal process. H. Fischer. diag Concrete 9:121-6 O '16
Rating and guarantee of small centrifugal machinery. C. M. Reed. Power 44:531-3 O 10 '16
Rating and guarantee of small centrifugal machinery. W. J. A. London. Power 44:213-15, 762-3 Ag 8, N 28 '16

Centrifugal pumps. *See* Pumps, Centrifugal**Cephalin**

- Brain cephalin; fatty acids. C. G. MacArthur and L. V. Burton. Am Chem Soc J 38:1375-82 Jl '16

Cephalopods

- Production of light by animals. U. Dahlgren. il J Fr Inst 181:525-56 Ap '16

Ceramics. *See* Pottery**Cereal dust.** *See* Grain dust**Cerebronic acid**

- Lignoceric acid from rotten oak wood. M. X. Sullivan. J Ind & Eng Chem 8:1027-8 N '16

Cerium

- Metallurgy of the rarer metals. J. W. Richards. J Ind & Eng Chem 8:740 Ag '16; Same. Met & Chem Eng 15:30-1 Jl 1 '16; Same. Sci Am S 82:224 S 30 '16
Volumetric determination of cerium by means of potassium permanganate. V. Lenher and C. C. Meloche. Am Chem Soc J 38:66-70 Ja '16

Cerium group

- Solution of the cerium group oxides by certain acids. W. S. Chase. J Ind & Eng Chem 8:239-40 Mr '16

Cernavoda, Roumania**Bridges**

- Cantilever bridge at Cernavoda. il diag Eng N 76:861-2 N 2 '16

Certified public accountants. *See* Accountants, Public**Cesium salts**

- Viscosities of solutions of caesium salts in mixed solvents. P. B. Davis and H. C. Jones. Am Chem Soc J 37:2636-42 D '15

Ceylon**Commerce**

- Cotton goods in Ceylon. R. M. Odell. U S Bur For & Dom Com 123:1-39 '16

Chain gear

- Design and construction of sprockets. B. D. Pinkney. diag Mach 22:407-10 Ja '16
5,000-hp. silent-chain drive. J. R. Allen. il diag Power 44:89-91 Jl 18 '16; Same (How the world's largest silent-chain drive solved a power-plant problem). Sci Am 115:435+ N 11 '16
Laying out chain camshaft drives; with discussion. F. L. Morse. Automobile 33:1008-9, 1037-8 D 2 '15
Silent chains in ventilation. il Coal Age 8:1052 D 25 '15

Chain screen doors. *See* Furnaces**Chains**

- Chains and other lifting appliances; abstracts. G. S. Taylor. Engineer 120:631 D 31 '15; Iron Age 97:713 Mr 23 '16; Eng & Contr 45:479-80 My 24 '16
High and low sulphur in basic steel. J. S. Unger. il Iron Age 97:146-8 Ja 13 '16; Same cond. Eng N 75:364 F 24 '16; Same cond. Eng & Min J 101:595 Ap 1 '16
Making chain under steam hammers. F. G. Coburn. il Iron Tr R 58:49-52 Ja 6 '16
Pine Bluff, Ark., vertical-lift span suspended by chains. il diag Eng N 75:402-6 Mr 2 '16

Chains—Continued

- Safe practice in the use of crane chains, E. B. Morgan, *diag Eng & Contr* 41:440 D 8 '15
See also Chain gear

Chair factories

- Model chair factory uses central-station service, Elec R & W Elec'n 69:25-6 J1 1 '16

Chalcocite

- Graphic intergrowth of bornite and chalcocite, A. F. Rogers, *pls Econ Geol* 11:582-93 Ag '16
 Laboratory studies on secondary sulphide ore enrichment; the copper sulphides and hydrogen sulphide, S. W. Young and N. P. Moore, *Econ Geol* 11:349-65 Je '16
 Observations on certain types of chalcocite and their characteristic etch patterns, C. F. Tolman, jr., 10 *pls Am Inst Min E Bul* 110: 401-33 F '16; Discussion, 113:895-900 My '16
 Origin and occurrence of certain crystallographic intergrowths, J. Segall, *pls Econ Geol* 10:462-70 J1 '15; Discussion, J. C. Ray, 11:179-85 Mr '16

Chalcopyrite

- Laboratory studies in sulphide ore enrichment; formation of chalcopyrite by artificial replacement, S. W. Young and N. P. Moore, *il Econ Geol* 11:574-81 Ag '16

Chamber of commerce of the United States

- Chamber of commerce of the United States on revision of regulation of railways, Ry R 59:729-32 N 25 '16

- 4th annual convention, Washington, D. C., Feb. 8-10, Elec W 67:395-6 F 12 '16; Iron Age 97:430-1 F 17 '16; Am Ind 16:31-2 Mr '16

- Referendum ordered on maintenance of resale prices, Elec R & W Elec'n 68:299 F 12 '16

Chamberlain, Hiram Sanborn, 1835-1916

- Sketch, *por Iron Age* 97:755 Mr 23 '16; Iron Tr R 58:567-8 Mr 23 '16

Chambers of commerce

- Engineer's work puts community building on sound economic basis, J. Z. George, *Eng Rec* 73:605-6 My 6 '16

- See also* Amarillo, Tex.—Board of city development

Chance. See Probabilities**Change houses. See Mine buildings****Change-making machine**

- Change-making machine for ticket windows, *il Ry Age* 60:1038 My 12 '16

Channel tunnel. See English Channel tunnel**Channeling machines**

- Channeling and channeling machines, C. L. Lucas, *il diag Mach* 22:453-8 F '16

Channels

- Bear Grass creek improvement, Louisville, Kentucky, *Munic Eng* 49:213-14 D '15
 Effect of channel on stream flow, N. C. Grover, *Boston Soc C E J* 3:465-76 N '16

Chapels

- Episcopal chapel at Westbury, Long Island; views and plan, *Brickb* 24:301-3 D '15
 San Giovanni in Oleo, Rome, W. L. Ward, *il Am Inst Arch J* 4:169-70 Ap '16

Character

- Standardizing the characteristics of men, W. F. Kemble, *il Ind Management* 52:308-23 D '16

Charcoal

- Rapid method for comparing the decolorizing efficiency of charcoals, L. Wickenden and J. W. Hassler, *diag J Ind & Eng Chem* 8: 518-19 Je '16

Charing Cross bridge. See London—Bridges**Charities and correction, National conference of.**
See National conference of charities and correction**Charlock oil**

- American charlock oil, H. S. Bailey and L. B. Burnett, *J Ind & Eng Chem* 8:429 My '16

Charters, Municipal. See Municipal charters**Charts (calculating)**

- Belt length chart, W. F. Schaphorst, *Eng & Min J* 102:868 N 11 '16
 Capacity of a coal pile, W. F. Schaphorst, *Iron Age* 98:711 S 28 '16

- Capacity of coke bins, N. G. Near, *Foundry* 44:418a O '16

- Chart determines loss due to incomplete combustion, H. F. Hutzler, *Power* 43:910 Je 27 '16
 Chart for calculation of three-phase transmission lines, Elec W 68:319 Ag 12 '16

- Chart for determining areas of cylindrical pipes for ducts, W. F. Schaphorst, *Heat & Ven* 13:48 N '16

- Chart for determining engine frame loads, E. A. Andrews, *Mach* 22:1056 Ag '16

- Chart for determining flow of water through pipes and friction loss, Elec W 68:912 N 4 '16

- Chart for determining quantity of road oil in partly filled tanks, E. E. Glass, *Eng & Contr* 46:299 O 4 '16

- Chart for determining the cost of coal on the heat value basis, W. F. Schaphorst, *Ry R* 59:422 S 23 '16; Same, *Am Soc M E J* 38: 1036-7 D '16

- Chart for determining the dimensions of chimneys and breechings, W. Wippermann, *Power* 43:287 F 29 '16

- Chart for determining the expansion of metals, W. F. Schaphorst, *Ry Mech Eng* 90:504 O '16; Same, *Gas Age* 38:84 J1 15 '16; Same, *Eng & Min J* 102:824 N 4 '16

- Chart for figuring amount of coal required per season for steam and hot water heating, *Heat & Ven* 13:54 S '16

- Charts tell weight of sheeting for round or box cofferdams, N. G. Near, *Eng Rec* 74: 451-2 O 7 '16

- Coal consumption required for certain pump duty, chart, Elec W 68:1105 D 2 '16

- Diagram for computing earthwork, M. P. Taylor, *Eng & Contr* 46:58 J1 19 '16

- Diagram for obtaining number feet B. M. in various timbers, W. R. Roof, *Eng & Contr* 46:453 N 22 '16

- Ellenwood steam charts, C. H. Berry, *Sibley J* 30:257-64 My '16

- Graphic determination of hysteresis loss; abstract, A. Castex, *Elec W* 68:679 S 30 '16

- Handy chart for figuring power capacity and efficiency of pumps, W. F. Schaphorst, *Eng & Contr* 46:136 Ag 9 '16

- Handy volume chart for circular concrete sections, W. F. Schaphorst, *Concrete* 9:114 O '16

- Nomographic blast-pressure chart, L. H. Bailey, *Met & Chem Eng* 14:295 Mr 15 '16

- Nomographic charts for conveyor belt calculations, R. E. Haylett, *Met & Chem Eng* 14: 8-9 Ja 1 '16

- Practical belt chart, W. F. Schaphorst, *Eng & Min J* 102:426 S 2 '16

- Proper current densities, B. B. Hood, *Met & Chem Eng* 15:571-3 N 15 '16

- Pulley computation chart, W. F. Schaphorst, *Eng & Min J* 102:906 N 18 '16; Same, *Coal Age* 10:871 N 25 '16

- Rapid reckoning chart, E. E. Fournier d'Albe, *il Elec W* 67:836 Ap 8 '16

- Simple chart for finding plant efficiency, W. F. Schaphorst, *Elec R & W Elec'n* 69:17-18 J1 1 '16

- Simplified method of determining cost of coal per 1000 lb. of steam; chart, W. H. Schott, *Elec W* 66:754-6 O 2 '15; Same, *Power* 42:456-8 S 28 '15; Same, *Eng & Min J* 100:636-8 O 16 '15; Same, *Am Gas Light J* 104:5 Ja 3 '16

- Use of diagrams in chemical calculations, H. G. Deming, *J Ind & Eng Chem* 8:264-72 Mr '16

- Useful diagrams for computing sizes of cross-compound pumping engines, Elec W 68:768 O 14 '16

- Zenith nomograph for displacement and gas velocities, *Automobile* 35:617 O 12 '16

See also Graphic methods

Chassis. See Automobiles—Chassis**Château des Grotteaux**

- Château of Les Grotteaux, F. Kimball, *il plan Arch Rec* 40:445-9 N '16

Chattanooga, Tennessee**Bridges**

- Chattanooga bridge falsework swept away by flood, *Eng N* 74:1291 D 30 '15

Checks

- Bank check to invade Europe, *Sci Am* 115:236 S 9 '16

Checks—Continued

- Helping somebody to forge your check. E. J. Buckley. *Metal Work* 86:319 S 8 '16
 New form of voucher check. *Elec Ry J* 47:397 F 26 '16
 When to arrest customers passing bad checks. E. J. Buckley. *Metal Work* 84:779 D 17 '15
 Who stands loss when your check is raised? E. J. Buckley. *Metal Work* 86:221 Ag 18 '16
 Who stands the loss when your check is raised? *Metal Work* 86:284-5 S 1 '16

Cheese

- Substitute for rennet in cheese making. *Sci Am* 115:177 Ag 19 '16

See also Dairy products

Chemical analysis. *See* Chemistry, Analytic**Chemical apparatus**

- Analysis by machinery. *diags Sci Am S* 82:341 N 25 '16
 Apparatus for digesting crude fiber. J. M. Pickel. *il diag J Ind & Eng Chem* 8:366-7 Ap '16
 Apparatus for Kjeldahl determinations. W. W. Randall. *diag J Ind & Eng Chem* 8:639-40 Jl '16
 Apparatus for the determination of the surface tension at the interface between two liquids. W. D. Harkins and E. C. Humphery. *diags Am Chem Soc J* 38:236-41 F '16
 Check valve for suction flasks. G. P. Walton. *diags J Ind & Eng Chem* 8:57 Ja '16
 Design of acid-resisting iron apparatus. N. Swindin. *diags Met & Chem Eng* 15:647-9 D 1 '16
 Extending the usefulness of a shaking machine. R. M. Chapin and J. M. Schaffer. *diags J Ind & Eng Chem* 8:921-2 O '16
 Improved form of gas-washing bottle. F. R. v. Bichowsky and H. Storch. *diags Am Chem Soc J* 37:2695-6 D '15
 Kjeldahl fume remover. F. G. Merkle. *diags J Ind & Eng Chem* 8:521-2 Je '16
 Manufacture of chemical apparatus in the United States. A. H. Thomas. *J Ind & Eng Chem* 8:437-41 My '16
 New form of absorption bottle for use with either calcium chloride or soda lime in the elemental analysis of carbon and hydrogen in organic substances. H. L. Fisher. *diag J Ind & Eng Chem* 8:368-9 Ap '16
 New tube for soda lime—a new absorbent for carbon dioxide in steel analysis. G. L. Kelley. *diag J Ind & Eng Chem* 8:1038-9 N '16
 Non-corrosive binding post. H. T. Leavenworth. *il Metal Ind n s* 14:17 Ja '16
 Simple bath used for the solution of samples in an oxygen-free atmosphere. O. L. Barney. *il Am Chem Soc J* 38:374-5 F '16
 Simple cell for the determination of hydrogen ion concentration. J. H. Long. *diag Am Chem Soc J* 38:936-9 Ap '16
See also Acid handling; Burets; Chemical extraction; Colorimeters; Condensers (vapors and gases); Fat extraction apparatus; Filters and filtration (technical chemistry); Metallurgical apparatus; Pipets; Viscosimeters; Volumetric apparatus

Chemical elements

- Essential attributes of the elements. T. W. Richards. *J Fr Inst* 182:78-86 Jl '16; Same. *Met & Chem Eng* 15:62-4 Jl 15 '16; Same. *Sci Am S* 82:134-5 Ag 26 '16
 Magnetic susceptibilities of the elements; tabulation. *Gen Elec R* 19:828 O '16
 Periodic system and the properties of the elements. W. D. Harkins and R. E. Hall. *diags Am Chem Soc J* 38:169-221 F '16
 Position of the abundant elements in the periodic system. J. Waddell. *Sci Am S* 82:323 N 18 '16

See also Atomic weights; Metals; Periodic law; Valence; also names of elements, e.g. Argon, Arsenic, Carbon, Nitrogen, Oxygen, Radium, Sulphur

Chemical engineering

- Chemical engineering in the university and its relation to the industries. *J Ind & Eng Chem* 8:2-4 Ja '16
 Master's course in chemical engineering. W. H. Walker. *il J Ind & Eng Chem* 8:746-8 Ag '16

Mechanical engineering of a synthetic phenol plant. F. Pope. *diags Met & Chem Eng* 15:185-92 Ag 15 '16

School of chemical engineering practice. W. H. Walker. *il Met & Chem Eng* 15:138-40 Ag 1 '16

See also Chemistry, Technical; Waste products

Chemical engineers

Organization for industrial preparedness; chemical engineers. C. H. Herty. *J Ind & Eng Chem* 8:462 My '16

Chemical engineers, American institute of. *See* American institute of chemical engineers

Chemical equilibrium

- Arsenates of lead; equilibrium in the system PbO, As₂O₅, H₂O. C. C. McDonnell and C. M. Smith. *Am Chem Soc J* 38:2366-9 N '16
 Determination of acetone in systems of methyl alcohol, water and potassium fluoride, and equilibria in systems of methyl ethyl ketone, water and inorganic salts. G. B. Frankforter and L. Cohen. *Am Chem Soc J* 38:1136-41 My '16
 Distribution of silver between metallic lead and litharge-containing slags. B. Dudley, jr. *Met & Chem Eng* 14:695-701 Je 15 '16
 Equilibria in the systems of the higher alcohols, water and salts. G. B. Frankforter and S. Temple. *Am Chem Soc J* 37:2697-716 D '15
 Equilibrium between bromine and potassium bromide solutions; abstract. G. Jones and M. L. Hartmann. *Met & Chem Eng* 15:479-80 O 15 '16
 Reversible replacement of alcohols in aldehyde-alcoholates. M. Willcox and R. F. Brunel. *Am Chem Soc J* 38:1821-41 S '16
 Ternary system CaO-Al₂O₃-MgO. G. A. Rankin and H. E. Merwin. *il diags Am Chem Soc J* 38:568-88 Mr '16

See also Phase rule and equilibrium

Chemical extraction

- New type of extractor. J. B. McNair. *diag J Ind & Eng Chem* 8:838 S '16
 Principles of counter-current extraction. W. K. Lewis. *J Ind & Eng Chem* 8:825-33 S '16

Chemical gardens. S. L. Bastin. *il Sci Am S* 81:388 Je 17 '16

Chemical industries

- Accident prevention in the chemical industries. F. W. Keough. *Met & Chem Eng* 13:731-4 O 15 '15; Excerpts. *Am Ind* 16:23-4 N '15; Excerpts. *Am Gas Light J* 104:124 F 21 '16
 American chemical industries must be built up by American methods. J. Koebig. *J Ind & Eng Chem* 8:384-5 Ap '16
 American chemist and the war's problems. J. R. Withrow. *J Ind & Eng Chem* 8:453-6 My '16
 Chemical industries. A. H. Hooker. *Met & Chem Eng* 14:511-13 My 1 '16
 Chemical industry and the university. C. E. Lucke. *Sch Mines Q* 36:306-12 Jl '15; Same. *J Ind & Eng Chem* 7:1012-14 D '15
 Chemicals made by electricity. *Elec W* 68:436 Ag 26 '16
 Chemistry and banking. J. E. Gardin. *J Ind & Eng Chem* 8:873-5 O '16
 Development in the United States of the manufacture of products derived from coal. H. W. Jordan. *J Ind & Eng Chem* 8:172-4 F '16; Same. *Met & Chem Eng* 14:144-6 F 1 '16; Same cond. *Am Gas Light J* 104:164-5 Mr 13 '16
 German chemical industries combine. *Sci Am S* 82:87 Ag 5 '16
 Great industries in Belgium before and during the war. H. Hubert. *Engineer* 121:156-7 F 18 '16; Same. *Met & Chem Eng* 14:376 Ap 1 '16
 Medicinal chemicals in America; discussion. *J Ind & Eng Chem* 8:963-5 O '16
 Miscellaneous chemical industries; convertibility of plant; discussion. *J Ind & Eng Chem* 8:965-7 O '16
 Preparedness in the chemical industries. *Sci Am* 114:236 Mr 4 '16
 Production of fuels, acids, etc.; resources of South. C. S. Williamson, jr. *Am Soc M E J* 38:451-2 Je '16

Chemical industries—Continued

- Schools to train foremen for our chemical industries. *Eng & Min J* 162:799-800 O 28 '16
- Symposium on occupational diseases in chemical trades. *J Ind & Eng Chem* 8:1651-67 N '16
- Technically trained foreman. A. Rogers. *il Sci Am* 114:577- Je 3 '16
- Universities and the industries; symposium. *J Ind & Eng Chem* 8:59-66 Ja '16; Discussion. 8:411-51 My '16
- War and American chemical industry. R. F. Bacon. *J Ind & Eng Chem* 8:547-53 Je '16
- See also* Chemical research; Chemicals; Chemicals—Manufacture; Chemistry, Technical; Coal-tar products; Corn starch; Corn syrup; Dye industry; Fertilizers and manures; Munitions of war; Potash; Saltpeter, Chile; Tannins

Exhibitions

- Second national exposition of chemical industries. *Met & Chem Eng* 15:229-30 S 1 '16; Textile World 51:4245-6 S 30 '16; *J Ind & Eng Chem* 8:969-74 O '16

Safety devices and measures

- Accident prevention in the chemical industries. F. W. Keough. *Met & Chem Eng* 13: 731-4 O 15 '15; Excerpts. *Am Ind* 16:23-4 N '15; Excerpts. *Am Gas Light J* 104:124 F 21 '16

Statistics

- Chemical import statistics. A. H. Baldwin. *Met & Chem Eng* 15:555 N 15 '16
- Revision of our chemical statistics. B. C. Hesse. *J Ind & Eng Chem* 8:749-54 Ag '16; Same. *Met & Chem Eng* 15:143-8 Ag 1 '16
- Revision of our chemical statistics. G. O. Smith. *Met & Chem Eng* 15:554-5 N 15 '16
- Why our chemical import statistics should be overhauled. B. C. Hesse. *J Ind & Eng Chem* 8:1050-3 N '16; Same. *Met & Chem Eng* 15: 515-18 N 1 '16; Same cond. Textile World 51:4443 O 14 '16; Discussion. *Met & Chem Eng* 15:505 N 1 '16

Chemical industries, National exposition of. See National exposition of chemical industries**Chemical industry, Society of. See** Society of chemical industry**Chemical laboratories**

- Chemical control in the manufacture of enameled ware. *il Met & Chem Eng* 15:542 N 1 '16
- Company that makes the most of its chemists; the Barber asphalt paving co. D. T. Pierce. *Met & Chem Eng* 14:519-20 My 1 '16; Chart. 14:580 My 15 '16
- Description of the chemical laboratory of the University of Illinois. B. S. Hopkins. *il plans J Ind & Eng Chem* 8:537-47 Je '16
- Facilities for conducting chemical tests in a New York central station. *il Elec W* 66:1259-60 D 4 '15
- New chemical laboratory of the University of Illinois. *il plans Met & Chem Eng* 14:421-4 Ap 15 '16
- Recovery of laboratory waste. *Sci Am S* 82: 296-7 N 4 '16

See also Brass foundries—Laboratories

Chemical patents

- Chemical patents; actions for infringement. S. C. Mastick. *J Ind & Eng Chem* 7:1071-81 D '15

Chemical reaction

- Action of hydrogen sulfide on arsenic acid. W. Foster. *Am Chem Soc J* 38:52-7 Ja '16
- Baly's theory of chemical reaction and reactivity. W. M. Dehn. *Am Chem Soc J* 38:1-15 Ja '16
- Differential iodimetry; determination of periodates, iodates, bromates and chlorates in the presence of each other. O. L. Barnebey. *Am Chem Soc J* 38:330-41 F '16
- Interaction of hydrogen and chlorine under the influence of alpha particles. H. S. Taylor. *Am Chem Soc J* 38:280-5 F '16
- Oxidation and reduction without the addition of acid; reaction between stannous chloride and potassium dichromate; a contribution to colloid-chemistry. M. Neidle and J. C. Witt. *Am Chem Soc J* 38:47-52 Ja '16

- Reaction between alcohols and aqueous solutions of hydrochloric and hydrobromic acids. J. F. Norris, M. Watt and R. Thomas. *Am Chem Soc J* 38:1071-9 My '16

- Reaction of both the ions and the nonionized forms of acids, bases and salts; the reaction of methyl iodide with sodium, potassium and lithium ethylates at 0°. B. M. Brown and S. F. Acree. *Am Chem Soc J* 38:2145-56 O '16

- Reactions in non-aqueous solvents; the action of chromyl chloride upon the phosphorus trihalides. H. S. Fry and J. L. Donnelly. *Am Chem Soc J* 38:1923-8 O '16

- Reply to Dr. Dehn. E. C. C. Baly. *Am Chem Soc J* 38:15-20 Ja '16

- Researches on amines; the utilization of hypochlorite color reactions in establishing the mechanism of the action of dimethylsulfate on aniline. N. A. Shepard. *Am Chem Soc J* 38:2507-14 N '16

- Theory of chemical reaction and reactivity. E. C. C. Baly. *Am Chem Soc J* 38:227-8 F '16

See also Chemical reagents

Chemical reaction, Velocity of

- Influence of some solvents on the rate of action of sodium with isomylbromide. P. W. Carleton. *Am Chem Soc J* 38:1128-36 My '16

- Mechanism of chemical change in living organisms. W. M. Bayliss. *Sci Am S* 82:226-7 O 7 '16

- Rates of conversion of the stereoisomeric cinchona alkaloids into their toxines. H. C. Biddle. *Am Chem Soc J* 38:901-8 Ap '16

Chemical reagents

- Action of certain acid reagents on the substituted ureas and thiazole. F. B. Dains, R. C. Roberts and R. Q. Brewster. *Am Chem Soc J* 38:131-40 Ja '16

- Analysis of maple products. J. F. Snell. *J Ind & Eng Chem* 8:144-8 F '16

- Reagents for use in gas analysis; chromous chloride. R. P. Anderson and J. Riffe. *J Ind & Eng Chem* 8:24-6 Ja '16

- Reagents for use in gas analysis; phosphorus in solution. R. P. Anderson and W. Biederman. *J Ind & Eng Chem* 8:135-6 F '16

- Reagents for use in gas analysis; the specific absorption of alkaline pyrogallol in various pipettes. R. P. Anderson. *diags J Ind & Eng Chem* 8:131-3 F '16

Chemical reduction. See Reduction, Chemical**Chemical research**

- Company that makes the most of its chemists; the Barber asphalt paving co. D. T. Pierce. *Met & Chem Eng* 14:519-20 My 1 '16
- Industrial preparedness for peace. C. A. Jacobson. *Sci Am* 115:80 J1 22 '16

- Need for a large government institution for chemical research. C. A. Jacobson. *J Ind & Eng Chem* 8:70-2 Ja '16

- Research, scientific and industrial in the coal-tar dye industry. B. C. Hesse. *J Ind & Eng Chem* 8:845-8 S '16

- Technochemical problems for research. R. F. Bacon. *Met & Chem Eng* 15:621 D 1 '16

See also Chemical laboratories; Chemistry, Technical

Chemical society, American. See American chemical society**Chemical terms. See** Chemistry—Terminology**Chemicals**

- Articles produced in or by chemical industries; table. *J Ind & Eng Chem* 8:750-2 Ag '16
- War's demands cause prices of waterworks chemicals to soar; abstracts. W. F. Monfort. *Eng Rec* 73:258-9 F 19 '16; *Eng N* 75: 530 Mr 16 '16

See also Chemical industries

Manufacture

- Mechanical engineering of a synthetic phenol plant. F. Pope. *diags Met & Chem Eng* 15: 185-92 Ag 15 '16

See also Dye factories

Standards

- Standardization of chemicals. T. Brown. *Metal Ind n s* 14:257-8 Je '16

Chemistry

- Chemistry; a review. *Engineer* 121:18-19 Ja '16
 Progress of chemistry. G. G. Henderson. *Sci Am S* 82:234-5 O 21 '16
 Pure vs. applied science. J. M. Matthews. *Sci Am S* 82:306-7 N 11 '16
 Scientific advances during 1915. H. R. Hosmer. *Gen Elec R* 19:92-5 F '16

See also Acids; Agricultural chemistry; Assaying; Atomic theory; Atomic weights; Atoms; Catalysis; Chemical reaction; Chemical reagents; Chemicals; Chemists; Colloids; Combustion; Crystallography; Dissociation; Earths, Rare; Electrochemistry; Gases; Indicators and test papers; Liquid air; Metallurgy; Molecules; Periodic law; Photochemistry; Photographic chemistry; Physics; Radioactive substances; Radioactivity; Solution (chemistry); Spectra; Stereochemistry; Sugars; Thermochemistry

Study and teaching

- Future of chemistry in the high school. R. H. Bradbury. *J Fr Inst* 182:229-47 Ag '16
 Training of chemists. A. Smith. *diag J Ind & Eng Chem* 8:527-33 Je '16

Terminology

- Inadequacy and inconsistency of some common chemical terms. C. Hering. *Met & Chem Eng* 15:649-50 D 1 '16

Chemistry, Agricultural. *See* Agricultural chemistry

Chemistry, Analytic

- Analysis by machinery. *diag Sci Am S* 82:341 N 25 '16
 Analysis of certain tungsten derivatives. O. R. Sweeney. *diag Am Chem Soc J* 38:2377-83 N '16
 Analysis of maple products. J. F. Snell and others. *J Ind & Eng Chem* 6:216-22, 301-2; 8:144-8, 241-3, 331-3, 421-2 Mr-Ap '14, F-My '16
 Analysis of permissible explosives. C. G. Storm. *il diag U S Bur Mines Bul* 96:1-81 '16
 Chemistry for the brass foundryman. E. P. Later. *Foundry* 44:223-5, 231-4, 317-19, 361-6, 434-6+, 469-72 Je-N '16
 Detection and determination of halogens in organic compounds. I. Drogin and M. A. Rosanoff. *Am Chem Soc J* 38:711-16 Mr '16
 Determination of tartaric acid. B. C. Hartmann, J. R. Eoff and M. J. Ingle. *J Ind & Eng Chem* 8:422-5 My '16
 Freezing as an aid in poison analysis. *Sci Am* 115:289+ S 23 '16
 Hydrochloride method for the determination of alkaloids. G. D. Beal and S. E. Brady. *J Ind & Eng Chem* 8:48 Ja '16
 Kjeldahl method for nitrogen determination. P. L. Blumenthal and G. P. Plaisance. *J Ind & Eng Chem* 7:1044-5 D '15
 New form of absorption bottle for use with either calcium chloride or soda lime in the elemental analysis of carbon and hydrogen in organic substances. H. L. Fisher. *diag J Ind & Eng Chem* 8:368-9 Ap '16
 Practical methods for the determination of radium. S. C. Lind. *diag J Ind & Eng Chem* 7:1024-9 D '15
 Proposed rapid method for the analysis of limestone for agricultural processes. A. S. Behrman. *J Ind & Eng Chem* 8:42-5 Ja '16
 Qualitative tests for gum arabic and its quantitative determination. C. E. Waters and J. B. Tuttle. *U S Bur Stand Tech Pa* 67:1-15 '16; Same cond. *J Ind & Eng Chem* 8:413-16 My '16
 Rapid method for the determination of carbon dioxide. W. H. Waggaman. *diag J Ind & Eng Chem* 8:41 Ja '16
 Rapid method for the determination of soluble nitrocellulose in guncotton. H. C. Mallinson. *diag J Ind & Eng Chem* 8:401-2 My '16
See also Air—Analysis; Assaying; Butter—Analysis; Casein; Coal—Analysis; Dialysis; Electrolysis; Food—Analysis; Gas analysis; Lime-sulphur solutions; Metallurgical analysis; Oil analysis; Soil analysis; Steel—Analysis; Volumetric analysis; Water—Analysis

Qualitative

- Determination of moisture in syrups by the calcium carbide method. R. M. West. *diag J Ind & Eng Chem* 8:31-5 Ja '16
 Determination of sulfuric anhydrid. E. G. Pierce. *il Met & Chem Eng* 15:353-4 S 15 '16

Quantitative

- Analysis of non-alcoholic lemon and orange extracts. E. L. Redfern. *J Ind & Eng Chem* 8:421 My '16
 Application of the paper pulp filter to the quantitative estimation of calcium and magnesium. S. L. Jodidi and E. H. Kellogg. *il J Fr Inst* 181:217-32 F '16
 General applicability of the paper pulp filter to quantitative analysis. S. L. Jodidi and E. H. Kellogg. *J Ind & Eng Chem* 8:317-19 Ap '16
 Gravimetric determination of reducing sugars in cane products. G. P. Meade and J. B. Harris. *J Ind & Eng Chem* 8:504-9 Je '16
 Quantitative determination of hippuric acid in urine, blood, muscles and liver; a method. H. Ito. *diag Am Chem Soc J* 38:2188-92 O '16
 Quantitative determination of silica. V. Lenher and E. Truog. *Am Chem Soc J* 38:1050-63 My '16

See also Calorimetric analysis; Volumetric analysis

Standard methods

- Standard methods of sampling and analysis and standard samples. W. F. Hillebrand. *J Ind & Eng Chem* 8:466-9 My '16

Chemistry, Biological. *See* Biological chemistry

Chemistry, Botanical. *See* Botanical chemistry

Chemistry, Industrial. *See* Chemistry, Technical

Chemistry, Organic

- Halogenation; chloric acid as a reagent in organic chemistry. R. Lal Datta and J. K. Choudhury. *Am Chem Soc J* 38:1079-86 My '16
 Victor Meyer—his life and work. B. Horowitz. *bibliog J Fr Inst* 182:363-94 S '16

See also Alcohol; Alcohols; Alkaloids; Essential oils; Esters; Ethers; Gas; Hydrocarbons; Proteins; Tannins

Chemistry, Photographic. *See* Photographic chemistry

Chemistry, Physical and theoretical

- Application of centrifugal force to suspensions and emulsions. E. E. Ayres, jr. *Met & Chem Eng* 14:500-2 My 1 '16
 Chemistry of amorphous solids. W. H. Lewis. *Sci Am S* 81:382-3 Je 10 '16
 Constitution and fundamental properties of solids and liquids. I. Langmuir. *Am Chem Soc J* 38:2221-95 N '16
 Sir William Ramsay, the father of the new physical chemistry. *il Sci Am* 115:117 Ag 5 '16
 Technical applications of capillary and electrocapillary chemistry. W. C. M. Lewis. *Met & Chem Eng* 15:253-9 S 1 '16

See also Addition compounds; Allotropy; Atomic theory; Atomic weights; Atoms; Boiling points; Catalysis; Chemical equilibrium; Chemical reaction; Colloids; Critical point; Crystallography; Dissociation; Electrochemistry; Electrolysis; Electrons; Equation of state; Free energy; Isomerism; Isotopy; Liquid air; Molecular rotation; Molecular weights; Molecules; Osmosis; Periodic law; Phase rule and equilibrium; Photochemistry; Physics; Radioactivity; Solubility; Solution (chemistry); Stereochemistry; Thermochemistry; Thermodynamics; Triarylcannabinols; Valence

Chemistry, Technical

- Application and earning power of chemistry in the coal mining industry. E. M. Chance. *Am Inst Min E Bul* 112:711-14 Ap '16; Same. *Met & Chem Eng* 14:440-1 Ap 15 '16
 Application of chemistry by the municipality. H. W. Mahr. *Sci Am S* 81:193 Mr 25 '16
 Chemistry in coal mining. A. G. Blakeley. *tables Coal Age* 10:296-302 Ag 19 '16
 Expanding relations of chemistry in America. C. H. Herty. *J Ind & Eng Chem* 8:875-8 O '16

Chemistry, Technical—Continued

Laboratory problems in industrial chemistry. H. K. Benson. *J Ind & Eng Chem* 8:516-17 Je '16

Past and future of industrial chemistry. *Engineer* 122:113, 146-7, 170-1, 210-11, 230 Ag 11-25, S 8-15 '16

Perkin medal award to L. H. Baekeland; addresses. *J Ind & Eng Chem* 8:177-90 F '16

Presentation of Perkin medal to L. H. Baekeland. C. F. Chandler; L. H. Baekeland. *Met & Chem Eng* 14:147-58 F 1 '16

Processes of the organic chemical industry as used in the manufacture of intermediate products. A. H. Ney and D. J. Van Marle. *il Met & Chem Eng* 15:585-8 N 15 '16

Role of chemistry in the war. A. S. Cushman. *J Fr Inst* 181:163-90 F '16

Some of the fruits of necessity. *Sci Am* 115:276 S 23 '16

Universities and the industries; symposium. *J Ind & Eng Chem* 8:59-66 Ja '16; Discussion. 8:441-51 My '16

University and industry; meeting of New York section of American chemical society. *Met & Chem Eng* 14:413-15 Ap 15 '16

Use of diagrams in chemical calculations. H. G. Deming. *J Ind & Eng Chem* 8:264-72 Mr '16

See also Acetylene; Ammonia; Barium; Blast furnace gas; Bleaching solutions; Boiler scale; Cement; Chemical industries; Chemicals; Coal-tar colors; Coal-tar products; Coke oven gas; Corrosion and anti-corrosives; Cyanide process; Distillation; Dyes and dyeing; Electrochemistry; Essential oils; Expansion (heat); Explosives; Fireproofing; Food preservatives; Fuel; Gas; Gas manufacture and works; Glass manufacture; Glucose; Glue; Gums and resins; Hydrometallurgy; Ink; Leather; Metallurgy; Oils and fats; Ore treatment; Paint; Paper; Paper making and trade; Perfumery; Petroleum; Potash; Refractory materials; Rubber; Artificial; Soap; Soap powders; Sugar; Sulphuric acid; Tanning; Tannins; Tar; Textile industry and fabrics; Varnish and varnishing; Waste products; Wood distillation; Wood preservation

Study and teaching

New courses in industrial chemistry in England. *Met & Chem Eng* 15:571 N 15 '16

Technical training of foremen. *Sci Am* 115:404 N 4 '16

Chemists

Chemist on the board. E. Hendrick. *Met & Chem Eng* 14:238-9 Mr 1 '16

Role of the chemist in the cement industry. C. N. Wiley. *J Ind & Eng Chem* 8:276-8 Mr '16

Chemists' protective association

Criticism of the objections raised by W. Moore to the formation of a Chemists' protective association. R. G. Myers. *J Ind & Eng Chem* 8:383-4 Ap '16

Cherries

Utilization of cherry waste products. F. Rabak. *il Sci Am* 114:573+ Je 3 '16

Chesapeake & Ohio Northern railway

Building the Chesapeake & Ohio Northern railway. *il diags map Eng N* 75:6-11 Ja 6 '16
Construction. *il maps Ry Age* 60:397-400 Mr 3 '16

Chesapeake & Ohio railway

38th annual report. *map Ry Age* 61:623-5, 673-5 O 13 '16

Chester, England**Architecture**

Architecture of mediaeval Chester. D. Lyman. *il Arch Rec* 40:285-7 S '16

Chicago, Illinois

Chicago's 1915 building operations. *il Bldg Age* 38:28-30 F '16

Chicago's public-utility subway. *diags Eng N* 74:1157 D 16 '15

Neighborhood centers in Chicago. J. Hudnut. *il plan Am Inst Arch J* 4:68-70 F '16

Smoke as a source of atmosphere pollution.

W. F. M. Goss. *il maps J Fr Inst* 181:305-33 Mr '16

See also Field museum of natural history, Chicago

Architecture

Barrett apartment house. W. D. Foster. *il plans Arch Rec* 39:144-53 F '16

Y. M. C. A. college in Chicago. P. B. Wight. *il plans Arch Rec* 39:395-418 My '16

Bridges

Design and construction of the substructure for a three-track trunnion bascule bridge in Chicago, Ill. *il diags Eng & Contr* 45:188-90 F 23 '16

Double-deck trunnion bascule bridge put into use. *il Eng Rec* 73:418 Mr 25 '16

First double deck bascule bridge, Chicago. *Munic J* 40:374 Mr 16 '16

Improving the appearance of Chicago river bridges. *il Eng N* 76:282-3 Ag 10 '16

New bridge of the Chicago & Northwestern Ry. over the north branch of the Chicago river. *il diags plan Ry R* 59:203-6 Ag 12 '16

New three-track bascule bridge at Chicago. *il diags Ry Age* 61:233-6 Ag 11 '16

Renewing a drawbridge across the Chicago river. *il Eng N* 74:1267 D 30 '15

Budget

Efficiency budget of Chicago. *Munic Eng* 50:111 Mr '16

Clubs

South Shore country club, Chicago; Marshall & Fox, arch'ts. P. B. Wight. *il plans Arch Rec* 40:418-33 N '16

Commerce

How Chicago business concerns co-operated on freight problems. H. C. Barlow. *Ry R* 59:162-3 J 1 29 '16

Fire department

Chicago fire department. G. W. Rutherford. *Munic J* 41:216-17 Ag 24 '16

Hotels

Design features of the Edgewater beach hotel building. *diags plan Eng & Contr* 45:278-80 Mr 22 '16

Electrical construction features of Hotel Morrison, Chicago. *il diags plan Elec R & W Elec'n* 68:111-15 Ja 15 '16

Lighting

Experiences in connection with Chicago's street lighting system. A. C. King. *W Soc E J* 21:483-94 Je '16

Special lighting of downtown Chicago street by Merchants' association. *il Elec W* 68:771-2 O 14 '16

\$3,750,000 for Chicago street lighting. *Elec W* 67:1436-7 Je 17 '16

Municipal pier

Chicago municipal pier. I. W. Hoover. *il plans Brickb* 25:261-4, pl 153-4 O '16

Chicago municipal recreation pier. *il Elec R & W Elec'n* 68:905-7 My 20 '16

Chicago's municipal pier. L. A. Dumond. *il Munic Eng* 50:243-4 Je '16

Erecting steel arch trusses. *il Eng N* 75:999 My 25 '16

Plumbing and piping on the municipal pier. *il diags Dom Eng* 76:286-9 Ag 26 '16

Three-hinged arches and curved cantilever roof trusses used in recreation building. *il diags Eng Rec* 74:140-1 J 1 29 '16

Ordinances, etc.

New rules governing the handling of water pipes and other underground utility structures encountered in excavating sewer trenches. *Eng & Contr* 45:288 Mr 22 '16

Public works

Chicago has new shop plant for all public works. C. C. Saner. *il plan Eng N* 75:1017-19 Je 1 '16

Chicago's need of public comfort stations. *Dom Eng* 77:147-8 N 4 '16

Chicago, Illinois—Public works—Continued

Clarendon municipal bathing beach, Chicago. F. H. Bernhard, il plan Munic J 41:477-9 O 19 '16

See also Chicago—Municipal pier

Railroads

Chicago association of commerce committee report on smoke abatement and electrification of railway terminals in Chicago. Eng & Contr 44:454-9 D 15 '15

Chicago association of commerce smoke-abatement report. map Ry Age 59:1047-52 D 3 '15

Chicago committee report on smoke abatement and terminal electrification. map Elec Ry J 46:1113-18 D 4 '15

Chicago electrification report. Elec R & W Elec'n 67:1080-1 D 11 '15

Chicago electrification report discussed at the New York railroad club. Elec Ry J 47:604-5 Mr 25 '16

Chicago report on electrification. Ry R 57:727-34 D 4 '15

Chicago smoke abatement and railway electrification. Eng N 74:1141 D 9 '15

Chicago smoke abatement report. W. N. Smith. Elec Ry J 46:1216-17 D 18 '15

Chicago track-elevation bridges of Illinois Central R. R. diags Eng N 75:600-3 Mr 30 '16

Chicago zone valuation committee. Ry Age 61:325-6 Ag 25 '16

Committee declares electrification of Chicago terminals financially impracticable. Eng Rec 72:707-8 D 4 '15

Cost of electrification of Chicago terminals; summary of the items entering into the expenditure for new equipment. Ry Age 59:1125-8 D 17 '15

Electrification of Chicago railroad terminals declared financially impracticable. Elec W 66:1279 D 4 '15

Electrification of railways in Chicago. Engineer 121:179 F 25 '16

Electrification of the railways of Chicago; smoke abatement report. Ry Age 59:1089-91 D 10 '15

Estimated costs of Chicago terminal electrification. diags maps Elec Ry J 46:1159-67 D 11 '15

General track and building plan for Chicago Union station is made public. plans Eng Rec 74:558-60 N 4 '16

Illinois Central presents terminal plans. il Eng Rec 74:404 S 30 '16

Illinois Central proposes three-level union station for Chicago. il Elec Ry J 48:537 S 23 '16

Illinois Central R. R.'s plan for new terminal in Chicago. il plan Ry R 59:403-5 S 23 '16

Illinois Central station at Chicago. plans Ry Age 61:517-19 S 22 '16

Pennsylvania freight terminal at Chicago. il plans Eng Rec 74:594-5 N 11 '16

Power requirements in the electrification of Chicago railroads. Ry R 58:197-201 F 5 '16

Production of smoke by the railways of Chicago; smoke abatement report. Ry Age 59:1193-6 D 24 '15

Progress on the new Chicago Union station. il diag plan Ry Age 61:802-5 N 3 '16

Railway traffic of the Chicago terminal; smoke abatement report. Ry Age 60:49-51 Ja 14 '16

St. Paul is doing intricate track-elevation work in Chicago with company forces. il map Eng Rec 74:75-7 JI 15 '16

\$600,000 inquiry finds electrification will not solve Chicago's smoke problem. maps Eng Rec 72:727-31 D 11 '15

Smoke abatement and electrification of railway terminals. W. F. M. Goss. diags maps W Soc E J 21:310-29; Discussion. 329-43 Ap '16

Smoke and electrification in Chicago; report. Ry Mech Eng 90:11-14 Ja '16

Smoke prevention in Chicago and electrification of railroads; report. map Munic Eng 49:202-7 D '15

Tentative designs for overhead contact system in the electrification of Chicago railway terminals. diags Ry R 58:6-15 Ja 1 '16

Tentative designs for terminal facilities in the electrification of Chicago railways. diags map Ry R 58:96-101 Ja 15 '16

Track elevation on Chicago & Western Indiana. il map Ry Age 60:427-30 Mr 40 '16

Track elevation project on the Evanston branch of the C. M. & St. P. il diags map Ry Age 60:755-9 Mr 31 '16

Valuation of Rock Island terminal zone in Chicago presents many special problems. C. W. Stark. Eng Rec 74:410-12 S 30 '16

Rapid transit

Chicago loop traffic analyzed. Elec Ry J 47:171 Ja 22 '16

Chicago's congested streets. plans Elec Ry J 48:218-21 Ag 5 '16

Chicago's congestion problem. Elec Ry J 48:271-4 Ag 12 '16

Lowering a tunnel under the Chicago river. il diags Eng N 76:968-72 N 23 '16

Study of Chicago's congested traffic. Elec Ry J 48:183-8 JI 29 '16

Sewerage

Antiquated sewage system. Munic Eng 51:104 S '16

Building relief and outlet sewers at Chicago. il diags map Eng N 75:212-14 F 3 '16

Chicago sewage treatment and dilution. Eng N 76:1056-7 N 30 '16

Chicago's Bubbly Creek will bubble no more. il map Eng N 76:725-7 O 19 '16

Chicago's Norwood park sewer. il map Munic Eng 51:175-7 N '16

Constructing a large concrete sewer at Chicago. diags map Eng N 74:1224-5 D 23 '15

Effect of sewer gas on concrete in a Chicago sewer. il diag Eng N 75:486-8 S 14 '16

Evanston intercepting sewer. diags Eng & Contr 46:227-8 S 13 '16

Plant and methods for large size brick sewer construction in Chicago. il Eng & Contr 46:37-9 JI 12 '16

Sewer and street work for new Chicago union station. il Eng N 75:948-50 My 18 '16

See also Chicago—Stock yards

Stock yards

Experiences in the application of the activated sludge process to Chicago stockyards sewage. A. Lederer. Eng & Contr 45:388 Ap 26 '16; Same. Eng N 75:932 My 18 '16; Same. J Ind & Eng Chem 8:652-3 JI '16

Tests show activated-sludge process adapted to treatment of stock-yards wastes. Eng Rec 74:137-8 JI 29 '16

Streets

Chicago street widening. Eng N 75:561 Mr 23 '16

Intensive street cleaning methods; standards of street cleanliness as developed by the Citizens' street cleaning bureau in the central business district of Chicago. R. T. Fox. il W Soc E J 21:232-49; Same cond. Eng Rec 73:252-4 F 19 '16; Discussion. W Soc E J 21:249-65 Mr '16

Street-car companies want less crown in pavements. Eng Rec 74:172-3 Ag 5 '16

Water supply

Experts report on meters for Chicago. Eng Rec 73:478 Ap 8 '16

New water tunnel at Chicago. il diags Eng N 75:969-73 My 25 '16

Sterilization of Chicago's water supply. Eng & Contr 45:398 Ap 26 '16

il W Soc E J 21:373-93 My '16; Abstract. Eng Wilson avenue water tunnel. H. W. Clausen. N 75:969-73 My 25 '16; Abstract. Eng & Min J 102:299-301 Ag 12 '16; Discussion. W Soc E J 21:393-402 My '16

Chicago & Alton railroad

Abstract of annual report for 1916. map Ry Age 61:787-8 N 3 '16

Chicago & Eastern Illinois railroad

Abstract of annual report for 1916. map Ry Age 61:733-4 O 27 '16

Chicago & Northwestern railway

57th annual report. map Ry Age 61:627-8, 671-2 O 13 '16

Valuation methods. Eng N 74:1160-2 D 16 '15

Chicago, Burlington & Quincy railroad

62d annual report. map Ry Age 61:928-30, 969-73 N 24 '16

Chicago electrical code

Chicago electrical rules revised. Elec R & W Elec'n 68:512 Mr 18 '16

Chicago Great Western railroad

Annual report for 1916. map Ry Age 61:788-9, 827-8 N 3 '16

Chicago, Milwaukee & St. Paul railway

Abstract of annual report for 1916. map Ry Age 61:584-5 O 6 '16

Diary of electric operation. C. M. & St. P. Ry. G. M. Hayden. Ry R 58:247-8 F 12 '16

Electric operation. il Elec Ry J 47:633-40 Ap 1 '16

Electric operation on the St. Paul. A. H. Armstrong. il Elec Ry J 47:1130-3 Je 17 '16

Electric traction a success. il Eng N 76:24-7 J1 6 '16

Electrification of the mountain district. W. D. Bearce. il map Gen Elec R 19:924-9 N '16

Electrification on the Chicago, Milwaukee, and St. Paul railway. il Engineer 120:454-5; 122: 136-8, 144, 159-60 N 12 '15, Ag 18-25 '16

Electrification operation. il Ry Age 61:23-5 J1 7 '16

Epoch in railway electrification; in the Chicago, Milwaukee and St. Paul project electric locomotives are installed for the first time to operate over several engine divisions. il Am Ind 17:24-6 Ag '16

Milwaukee electrification. W. B. Potter. Gen Elec R 19:923 N '16

Operation of the St. Paul electrification. il Ry Age 60:957-9 Ap 28 '16

Pole lines of the C. M. & St. P. electrification. il Elec R & W Elec'n 69:590-3 S 30 '16

Practical results obtained by electrification. C. A. Goodnow. il Gen Elec R 19:910-15 N '16

St. Paul is doing intricate track-elevation work in Chicago with company forces. il map Eng Rec 74:75-7 J1 15 '16

Substations of the Chicago, Milwaukee & St. Paul railway electrification. A. Smith. il diags Gen Elec R 19:973-9 N '16

Three thousand volt direct current sub-stations. il Power 44:179-80 Ag 1 '16

Chicago, Rock Island & Pacific railroad

Abstract of annual report for the fiscal year ended June 30, 1915. map Ry Age 60:46-8 Ja 14 '16

Report for year ending June, 1916. map Ry Age 61:833-5 N 10 '16

Should the Rock Island be sold under foreclosure? Ry Age 60:777-8 Ap 7 '16

Chicago, St. Paul, Minneapolis and Omaha railway

35th annual report. Ry Age 61:675-6 O 13 '16

Chief interchange car inspectors' and car foremen's association

18th annual convention, Indianapolis, Ind., Oct. 3-5. Ry Age 61:652-7 O 13 '16; Ry Mech Eng 90:571-80 N '16

Chihuahua, Mexico

Metallurgy of native-silver ores of southwestern Chihuahua. W. M. Brodie. il Eng & Min J 101:297-301 F 12 '16

Child labor

Discussion of child labor legislation. J. M. Davis. Textile World 51:2938 Je 24 '16

Chile**Commerce**

Markets for American hardware in Chile and Bolivia. V. L. Havens. il U S Bur For & Dom Com misc ser 41:1-158 '16; Abstract. Sci Am 115:425-6 N 4 '16

Markets for machinery and machine tools in Peru, Bolivia, and Chile. J. A. Massel. U S Bur For & Dom Com 118:62-85 '16

Commercial policy

Report on trade and tariffs. U S Fed Tr Comm p 147-87 '16

Industries and resources

Copper smelting at Naltagua in central Chile. M. L. Lamb. il Eng & Min J 102:777-80 O 28 '16

Genesis of the Chilean nitrate deposits. J. T. Singewald, Jr., and B. L. Miller. bibliog Econ Geol 11:103-14 Mr '16

Metallurgical operations at the Braden copper co. R. E. Douglass and B. T. Colley. il Eng & Min J 101:315-21 F 12 '16

Metallurgical operations at the Chile exploration co. C. A. Rose. il diags flow sheet Eng & Min J 101:321-6 F 12 '16

Nitrate industry in Chile. E. Cuevas. Met & Chem Eng 14:426-7 Ap 15 '16

See also Copper mines and mining—Chile; Iron mines and mining—Chile; Mines and mineral resources—Chile

Chile saltpeter. See Saltpeter, Chile

Chilean mills. See Crushing machinery

Chilled iron

Chilling sheave wheels. G. S. Evans. Foundry 44:476 N '16

Control of chill in cast iron, considering the elements effective in the manufacture of malleable castings and chilled car wheels. G. M. Thrasher. il Am Inst Min E Bul 106: 2129-38 O '15; Same. Foundry 43:491-3+ D '15; Same. Iron Tr R 57:1171-3+ D 16 '15; Same cond. Iron Age 97:550-2 Mr 2 '16; Discussion. Am Inst Min E Bul 113:927-8 My '16

Work of the Association of manufacturers of chilled car wheels; presidential address. G. W. Lyndon. Ry R 59:542-3 O 21 '16; Same. Iron Age 98:947 O 26 '16; Same cond. Ry Age 61:801 N 3 '16; Same cond. Ry Mech Eng 90:570 N '16

Chillicothe, Missouri

Water supply

Special devices installed to improve operation of new mechanical filters. E. E. Harper. diags Eng Rec 74:320-2 S 9 '16

Chimes

Carillons and chimes. W. W. Starmer. Sci Am S 82:122-3 Ag 19 '16

Chimney cleaning

Shooting soot from stacks. S. R. Russell. diag Eng & Contr 45:506-7 My 31 '16; Same. Metal Work 86:618 N 17 '16

Chimneys

Boilers for modern house heating. A. G. King. diags Dom Eng 76:86-8 J1 15 '16

Brick chimney strengthened by reinforced concrete. E. McCullough. il diag Eng Rec 74:173 Ag 5 '16

Calculating the dimension of chimneys and stacks. G. A. Orrok. Power 44:384-5 S 12 '16

Capacities of chimneys. G. A. Orrok. Power 44:274-6 Ag 22 '16

Capacities of chimneys. H. G. Brinckerhoff. Power 44:529-30 O 10 '16

Chimney construction gives trouble. diag Metal Work 85:475 Ap 7 '16

Chimney troubles. diag Dom Eng 75:297-8 Je 3 '16

Cost of power plant chimneys. Elec Ry J 47: 397 F 26 '16

Design and construction of chimneys for railways. il Ry Age 59:1153-6 D 17 '15

Difficult chimney foundation tested after completion. il diag Eng N 75:1138-9 Je 15 '16

Felling a combined tile and concrete chimney. F. C. Perkins. il Power 43:218-19 F 15 '16

Heat fans discuss chimney experiences. Metal Work 85:772-3 Je 9 '16

Influences that affect a chimney. diag Metal Work 85:714-15 My 26 '16

Lecture course on elements of heating. C. A. Fuller. Metal Work 86:312 S 8 '16

Making sheet metal chimney tops. L. S. Bonbrake. diags Metal Work 86:669-70 D 1 '16

Old brick chimney with a cantilever base. B. A. Wise. diag Eng N 75:572 Mr 23 '16

Power-house chimney design for bituminous coal. R. Trautschold. Coal Age 9:250-2 F 5 '16

Proportioning chimneys on a gas basis. A. L. Menzin. Am Soc M E J 38:31-4 Ja '16; Discussion. A. G. Christie. 38:148 F 16

Selection of stacks and breeching; chart for determining dimensions. W. Wippermann. Power 43:236-9 F 29 '16

Size of chimney flue. Metal Work 84:744 D 10 '15

Things to know about chimneys. G. D. Crain, Jr. Bldg Age 38:69-70 Je '16

Things to remember about chimneys for heating boilers. E. C. Molby. Heat & Ven 13: 23-5 O '16

Chimneys—Continued

When is a chimney not a stack? T. R. Tarn. Power 43:741 My 23 '16
Where the chimney is too large for the heating boiler. diags Dom Eng 75:164-5 My 6 '16
Why the chimney tops overhang. il Bldg Age 38:58-9 Je '16

See also Fireplaces; Heating; Ventilation

Chimneys, Concrete

Chimney fails from insufficient curing. F. R. McMillan. il diags Concrete 9:100 S '16

Chimneys, Steel

Corrosion of steel stacks. R. K. Long. Power 44:383 S 12 '16
Design of steel stacks. H. M. White. Eng & Contr 46:440-2 N 22 '16
Design of steel stacks. W. A. Hitchcock. diags Eng & Contr 46:369-72 O 25 '16
Erecting a steel stack. L. L. Hebbard. il Power 43:879 Je 20 '16
Evolution of a steel stack. R. K. Long. Power 43:922-3 Je 27 '16

Features of the new copper smelting plants in Arizona. A. G. McGregor. diags Am Inst Min E Bul 116:1277-9 Ag '16; Same. Met & Chem Eng 15:336-7 S 15 '16; Same. (Constructing a steel chimney foundation of molten slag). Eng & Contr 46:170, 274 Ag 23, S 27 '16

Philadelphia electric company power station A-2 has four 12-foot steel stacks 165 feet high. il diags Eng Rec 73:240-3 F 19 '16

Steel framing of a large power station, Newark, N. J. Eng N 74:1264 D 30 '15

China**Commerce**

Chinese markets for iron and steel. J. K. Goodrich. Iron Tr R 59:432-3 Ag 31 '16
Chinese mineral exports grow. Eng & Min J 102:587 S 30 '16
Cotton goods in China. R. M. Odell. il U S Bur For & Dom Com 107:1-241 '16
Our China trade—have we lost it? H. Ayres. Textile World 51:503+ Ja 15 '16

Economic conditions

Address at meeting of American iron and steel institute. E. H. Gary. Iron Age 98:993-6 N 2 '16; Same. Iron Tr R 59:905-8 N 2 '16

Cotton goods in China. R. M. Odell. U S Bur For & Dom Com 107:123-6 '16; Same. Sci Am S 81:169 Mr 11 '16

Magna charta of China's forestry work. J. Bailie. il Am For 22:268-72 My '16

Silver position in China. Eng & Min J 102:272 Ag 5 '16

Would lend helping hand to China. E. H. Gary. Iron Tr R 59:849 O 26 '16

Industries and resources

Antimony in Hunan province, southern China. A. S. Wheeler. diags Eng & Min J 101:637-41 Ap 8 '16; Same cond. Met & Chem Eng 14:374-5 Ap 1 '16; Discussion. Met & Chem Eng 14:538-9 My 1 '16

Chinese build reinforced-concrete warehouses. E. Park. il Eng Rec 74:557 N 4 '16

Copper mining in China. Iron Tr R 57:1256c D 23 '15

Electric generating stations in China; with discussion. C. A. M. Smith. Inst E E J 54:162-8 Ja 1 '16

Hanyang iron and steel works. il diags map plan Engineer 121:51-2, 78-80 Ja 21-23 '16

Salt-wells of Tzulutsing. H. K. Richardson. il Sci Am S 82:324-5, 328-9 N 18 '16

See also Botany—China; Coal mines and mining—China; Forests and forestry—China; Iron mines and mining—China; Mines and mineral resources—China

Railroads

See Railroads—China

Theater

Motion pictures and the Chinese theatergoers. Sci Am 115:337+ O 7 '16

Chinaware. See Pottery

Chinchilla

Knitted chinchilla. il Textile World 51:1141 F 19 '16

Chinese wood oil

Optical dispersion of Chinese wood oil as an index of purity. E. E. Ware. il J Ind & Eng Chem 8:126-8 F '16

Polymerization of Chinese wood oil. C. L. Schumann. J Ind & Eng Chem 8:5-15 Ja '16

Chiriqui railway

Construction of the Chiriqui railway. A. S. Zinn. il map Ry Age 61:847-50 N 10 '16

Chisels

Chisels. H. Fowler. diags Engineer 121:170 F 25 '16; Same. Iron Tr R 58:766 Ap 6 '16; Same. Ry Mech Eng 90:204-5 Ap '16; Same. Eng M 51:276-7 My '16; Same. Mach 22:779 My '16; Same cond. Iron Age 97:844 Ap 6 '16; Discussion. Engineer 121:170-1 F 25 '16

Chloranil

Halogenation; the formation of chloropicrin and tetrachloroquinone by the action of aqua regia on organic substances. R. Lal Datta and N. R. Chatterjee. Am Chem Soc J 38:1813-21 S '16

Chlorates

Differential iodimetry; determination of periodates, iodates, bromates and chlorates in the presence of each other. O. L. Barnebey. Am Chem Soc J 38:330-41 F '16

Halogenation; chloric acid as a reagent in organic chemistry. R. Lal Datta and J. K. Choudhury. Am Chem Soc J 38:1679-86 My '16

Chloric acid

Halogenation; chloric acid as a reagent in organic chemistry. R. Lal Datta and J. K. Choudhury. Am Chem Soc J 38:1079-86 My '16

Chlorides

Chlorides in presence of thiocyanates. F. W. Bruckmiller. Am Chem Soc J 38:1953-5 O '16

Dissociation tensions of certain hydrated chlorides and the vapor pressures of their saturated solutions. I. H. Derby and V. Yngve. Am Chem Soc J 38:1439-51 Ag '16

Chloridizing ores. See Hydrometallurgy

Chlorination

Flame arc in chemical manufacture. W. R. Mott and C. W. Bedford. J Ind & Eng Chem 8:1032-3 N '16

Halogenation; chlorination with aqua regia. R. Lal Datta and F. V. Fernandes. Am Chem Soc J 38:1809-13 S '16

Chlorine

Chlorinating the water-supply of Greater New York. T. D. L. Coffin. il diags plan Eng N 76:438-40 S 7 '16

Chlorine gas reduced water sterilizing costs. C. O. Johnston. Eng Rec 73:740 Je 3 '16

Electrolytic chlorine for laundries. H. P. Hill. il diags Elec W 68:224-5 JI 29 '16

Interaction of hydrogen and chlorine under the influence of alpha particles. H. S. Taylor. Am Chem Soc J 38:280-5 F '16

Niagara electrolytic industries. A. H. Hooker. Met & Chem Eng 15:116-17 Ag 1 '16

Water company makes its own alum and chlorine. Eng N 76:477 S 7 '16

Water sterilization by chlorine gas. il Munic Eng 49:210 D '15

Chlorine, Liquid

Considerations in determining the point of application of liquid chlorine in the disinfection of water supplies. F. F. Longley. Eng & Contr 45:487-9 My 31 '16

Liquid chlorine. G. Ornstein. Met & Chem Eng 14:215-19 F 15 '16

Chloropentanes

Hydrolysis of chloropentanes as affected by high pressure: synthetic fusel oil. H. Essex, H. Hibbert and B. T. Brooks. diag Am Chem Soc J 38:1368-74 JI '16

Chlorophyll

Unsolved problems of photochemistry. H. A. Curtis. Met & Chem Eng 14:185-6 F 15 '16; Same. Sci Am S 81:181 Mr 18 '16

Chloropicrin

Halogenation; the formation of chloropicrin and tetrachloroquinone by the action of aqua regia on organic substances. R. Lal Datta and N. R. Chatterjee. Am Chem Soc J 38:1813-21 S '16

Chlorotoluenes

Action of sodium methylate upon the products of nitration of ortho-, and para- and meta-chlorotoluenes. H. S. Fry. *Am Chem Soc J* 38:1327-33 J1 '16

Choke coils

Choke coils. *il Elec W* 68:538 S 9 '16; *Elec R & W Elec'n* 69:481 S 9 '16; *Power* 44:557-8 O 17 '16

Chondrosamine pentacetate

Isomeric pentacetates of glucosamine and of chondrosamine. C. S. Hudson and J. K. Dale. *Am Chem Soc J* 38:1431-6 J1 '16

Christmas printing

Distinctive Christmas greetings; specimens. *Inland Ptr* 56:656a-656d F '16
Reproductions of Christmas greetings. J. L. Frazier. *il Inland Ptr* 56:641-5 F '16

Chrome-nickel steel. See Nickel-chromium steel**Chromic acid**

Constitution of chromic acid. A. K. Datta and N. Dhar. *Am Chem Soc J* 38:1303-8 J1 '16

Chromic chloride

Studies in dialysis; the dialysis of a colloidal solution of hydrous chromic oxide in chromic chloride. M. Neidle and J. Barab. *diag Am Chem Soc J* 38:1961-70 O '16

Chromic oxide

Studies in dialysis; the dialysis of a colloidal solution of hydrous chromic oxide in chromic chloride. M. Neidle and J. Barab. *diag Am Chem Soc J* 38:1961-70 O '16

Chromite

Chrome-iron ore as lining for reverberatory furnaces. E. Hall. *Eng & Min J* 101:267-8 F 5 '16

Chrome iron-ore situation. *Eng & Min J* 102:145 J1 15 '16

Chromic ore production. *Iron Tr R* 59:570 S 21 '16

Chromium

Determination of chromium in ferrochromium. A. F. MacFarland. *Met & Chem Eng* 15:279 S 15 '16

Effect of chromium and tungsten upon the hardening and tempering of high speed tool steel; abstract with discussion. C. A. Edwards and H. Kikkawa. *Iron Age* 96:1126-7 N 11 '15; Same. *Metal Work* 84:819-20 D 24 '15

See also Nickel chromium

Chromium oxide

Chromium oxide analysis. A. J. Field. *J Ind & Eng Chem* 8:238-9 Mr '16

Chromium steel

Chrome-nickel iron and steel products. L. Waldo. *Iron Age* 98:338 O 12 '16

Corrosion of high chromium steels. R. Hadfield. *Iron Age* 97:202-3 Ja 20 '16; Abstract (Stainless steel). *Eng M* 50:947 Mr '16

Critical cooling velocities of chromium steel: abstracts. C. A. Edwards, J. N. Greenwood and H. Kikkawa. *Engineer* 121:398 My 12 '16; *Met & Chem Eng* 15:100-1 J1 15 '16; Discussion. *Engineer* 121:398 My 12 '16

Manufacture and uses of alloy steels. H. D. Hibbard. *U S Bur Mines Bul* 100:19-22 '15; Same. *Ry R* 58:345-6 Mr 4 '16

Chromophotography. See Color photography**Chromous chloride**

Reagents for use in gas analysis; chromous chloride. R. P. Anderson and J. Riffe. *J Ind & Eng Chem* 8:24-6 Ja '16

Chromyl chloride

Reactions in non-aqueous solvents; the action of chromyl chloride upon the phosphorus trihalides. H. S. Fry and J. L. Donnelly. *Am Chem Soc J* 38:1923-8 O '16

Chronology

See also Calendar

Chrysalis oil

Hardened chrysalis oil. M. Tsujimoto. *J Ind & Eng Chem* 8:802-4 S '16

Chucks

Accurate lathe chuck. D. Baker. *diags Mach* 23:157 O '16

Chuck for the manufacture of flue cutter blades. E. A. Murray. *diags Ry Mech Eng* 90:88 F '16

Draw-in collet chuck for engine lathes. *il Iron Age* 98:927 O 26 '16

Lathe chucks. J. Horner. *diags Mach* 22:549-54, 746-9 Mr, My '16

New home of the Jacobs chuck. W. E. Free-land. *il Iron Age* 98:227-30 Ag 3 '16

Radial drill chuck for locomotive cylinders. R. J. Hickman. *diags Ry Mech Eng* 90:35 Ja '16

Rivett self-centering bushing chuck. *il diags Mach* 22:715 Ap '16

Screw chuck for patternmakers. M. E. Dugan. *diag Foundry* 44:378 S '16

Truing jaws of scroll chuck. G. A. Remacle. *diag Mach* 23:159-60 O '16

Truing up chuck jaws. W. G. Drummond. *diags Mach* 22:335 D '15

Vise chuck for filing piston rings. R. J. Hickman. *diags Ry Mech Eng* 90:146 Mr '16

Chucks, Magnetic

Grinding magnetic chucks. D. Baker. *Mach* 22:981 J1 '16

Labor saving devices in the machine shop. A. A. Dowd. *il Eng M* 51:78-80 Ap '16

Persons-Arter magnetic chucks. *il diags Mach* 22:712 Ap '16

Chucks, Pneumatic

Labor saving devices in the machine shop. A. A. Dowd. *il Eng M* 51:76-8 Ap '16

Church architecture

B'Nai Jeshurun temple, Newark, N. J. *il plan Brickb* 24:305-6, pl 166-7 D '15

Chapel of St. Simon the Cyrenian and St. Andrew Methodist Episcopal church, Philadelphia, Pa.; views and plans. *Brickb* 25:107, pl 54-6 Ap '16

Church edifice of unusual design; Wilshire Christian church at Los Angeles, C: A. Byers. *il plan Bldg Age* 38:41-2 Je '16

Church planning in the United States. R: F. Bach. *plans Arch Rec* 40:15-29, 145-62, 223-43, 455-77, 524-40 J1-S, N-D '16

Details of northwest gable and southwest entrance porch, Trinity church, Syracuse, N. Y. *Arch & Bldg* 48: detail sheet 2 F '16

Dome of St. Paul's, London. R: F. Bach. *il diags plans Brickb* 25:275-80 N '16

Dome of St. Peter's, Rome. R: F. Bach. *il diags Brickb* 25:249-54 O '16

First Congregational church, Montclair, N. J.; views. *Arch & Bldg* 48:pl 48-9 S '16

Old churches of Panama. C. P. Kimball. *il Arch Rec* 39:536-50 Je '16

St. John's Episcopal church, Laurel, Miss. *il plan Brickb* 25:pl 106-7 J1 '16

Views and plans. *Brickb* 24:307-10, 317, pl 170-80 D '15

West Park Presbyterian church, West 174th street, New York; views and plans. *Brickb* 24:pl 168-70 D '15

See also Architecture, Gothic; Cathedrals; Chapels; Temples

Church lighting

Church lighting; abstract. E. G. Perrot. *Elec R & W Elec'n* 69:808 N 4 '16

Concealed lighting that emphasizes architectural features of St. Helena cathedral interior, Helena, Mont. J. L. Stair. *il Elec W* 68:88-9 J1 8 '16

Gas lighted cathedral, SS. Peter and Paul, Philadelphia. *il Am Gas Light J* 103:395 D 20 '15

Gas lighting in a cathedral. J. D. Lee, jr. *il plan Illum Eng Soc* 11:693-703 no 7 '16

Lighting a church auditorium without fixtures. A. L. Powell and R. B. Thompson. *il diags Elec W* 67:482-4 F 26 '16

Lighting a church of the basilica type. *il diags Elec R & W Elec'n* 69:583-5 S 30 '16

Lighting a mural painting in St. Thomas Episcopal church, Whitmarsh, Pa. R. F. Pierce. *il plans Am Gas Light J* 105:1-3 J1 3 '16

Modern gas lighting in the Cathedral of Saint Peter and Saint Paul, Philadelphia. F. L. Godinez. *il Arch & Bldg* 48:4-5 Ja '16

Churches

See also Church architecture

Heating and ventilation

Heating and ventilating of churches. H. L. Alt. *diags Brickb* 24:311-14 D '15

Churches—Heating and ventilation—*Continued*
Theory and practice in warm-air heating.
diags Metal Work 85:221-2+ F 11 '16

Churn drills. See Rock drills

Chutes
Automatic chute from concrete mixer to bucket. C. B. Chace. diag Eng & Contr 46: 77 J1 26 '16
Heltzel car unloader chute. il Munic Eng 50: 115-16 Mr '16
Inclination of conveying chutes for concrete. F. H. Higbee. Eng & Contr 45:59 Je 28 '16
Minimum slopes for concrete chutes. S. E. Thompson. Eng & Contr 44:452 D 8 '15
Minimum slopes for concrete chutes. W. H. Insley. Eng & Contr 45:34-5 Ja 12 '16
Proper use of concrete gravity chutes. W. H. Insley. il Munic Eng 50:102-3 Mr '16
Proper use of concrete gravity chutes. W. H. Insley and C. C. Brown. Ry Age 60:505 Mr 17 '16
Retarder for steep chutes. diags Coal Age 9: 376 F 26 '16

Cigar-box wood
How cigar-box wood is secured. C. H. Pearson. il Am For 21:1098-1101 D '15

Cigaret paper
Analysis and composition of some cigarette papers. S. Jordan. J Ind & Eng Chem 8:812-13 S '16

Cinchona alkaloids
Rates of conversion of the stereoisomeric cinchona alkaloids into their toxins. H. C. Biddle. Am Chem Soc J 38:901-8 Ap '16

Cincinnati, Ohio

Bridges
Concrete bridges and viaducts of Cincinnati, Ohio. F. L. Raschig. il Eng & Contr 45:263-6 Mr 15 '16
Hopple street viaduct, is built with cantilever beams of arch form. E. K. Ruth. il diags Eng Rec 74:381-4 S 23 '16

Parks
Zoological garden of Cincinnati. R. W. Shufeldt. il plan Sci Am S 82:56-7 J1 22 '16

Rapid transit
Interurban entrance and rapid transit plan in Cincinnati. M. W. Rew. Eng N 75:673-4 Ap 6 '16

Streets
Repaving in Cincinnati. J. S. Crandall. il Munic J 41:443-5 O 12 '16

Water supply
Periods of filter service increased 250 per cent. J. W. Ellms and S. J. Hauser. Eng Rec 74: 643-4 N 25 '16

Cinder concrete. See Concrete, Cinder

Cinders
Cinder removal from flue gases of power plants. C. B. Grady. il diags Am Soc Heat & V E 21:232-43 '15; Excerpts. Eng M 4: 905-7 Mr '15; Discussion. Am Soc Heat & V E 21:243-5 '15
Taking cinders and dust from the gases in chimneys. diag Heat & Ven 13:52-3 J1 '16

Cinematograph. See Moving pictures

Ciphers
Telegraphic pictogram. E. Berkel. Sci Am 113:519 D 11 '15
See also Telegraph; Telegraph codes

Circles
Decimals of the degree and of the full circle. Eng Rec 72:671; 73:59, 121, 222, 292 N 27 '15, Ja 8, 22, F 12, 26 '16
Formula for finding area of segment of circle. Mach 22:803-4 My '16
Table of sines, tangents, chords and circular arcs. A. McAlpine. Foundry 44:304a Ag '16

Circuit breakers, Electric. See Electric circuit breakers

Circular forming tools for no. 6 B. & S. screw machine; with tables. W. W. Johnson. diag Mach 23:20-3 S '16

Circular mill
Circular mil formula derived. Power 44:240-1, 363-4 Ag 15, S 5 '16

Cities and towns

See also City planning; Housing problem; Model towns; Municipal government; Parks; Sewage disposal; Street cleaning; Streets; Water purification; Water supply

Citizenship. See Public service

Citric acid
Modification of the Pratt method for the determination of citric acid. J. J. Willaman. Am Chem Soc J 38:2193-9 O '16

Citronellal phosphoric acid. See Isophulegol phosphoric acid

Citrus fruits
Phases of the citrus by-product industry in California. R. T. Will. flow sheets J Ind & Eng Chem 8:78-86 Ja '16
Utilization of full Florida citrus fruits. F. A. McDermott. J Ind & Eng Chem 8:136-8 r '16; Same. Sci Am S 81:367-8 Je 3 '16

City cleaning. See Cleaning of cities

City government. See Municipal government

City halls. See Municipal buildings

City lighting. See Street lighting

City manager plan. See Municipal government—City manager plan

City managers' association
Convention, Springfield, Mass., 1916. Eng N 76:1053 N 30 '16

City planning
Automobile and the city plan. N. P. Lewis. Eng Rec 73:773-4 Je 10 '16; Same cond. Eng N 75:1162-3 Je 22 '16
City planning at Cebu. P. I. R. C. Hardman. plans Eng N 75:882-3 My 11 '16
City planning is for small cities as well as for large ones. J. Nolen. Eng Rec 73:772-3 Je 10 '16
City planning on an exceptionally large scale is meeting with public approval at Philadelphia. il plans Eng Rec 73:344-8 Mr 11 '16
City replanning in Duluth. W. B. Patten. map Eng N 76:645-6 O 5 '16
Civic improvement of Minneapolis. G. B. Ford. il Am Inst Arch J 4:427-9 O '16
Cleveland bridge problem and a proposed solution. G. B. Ford. il Am Inst Arch J 4:395-6 S '16
Crazy city planning. plan Eng N 75:499 Mr 16 '16
Engineer and the architect. A. W. Brunner. Ry R 58:551-3 Ap 15 '16
Excess condemnation and city planning. C. K. Mohler. il diags Eng N 76:20-2 J1 6 '16
Model city-planning board. Eng N 75:19 Ja 6 '16
New era for mining towns. K. B. Lohmann. plan Coal Age 8:799-800 N 13 '15
New profession—city-planning. W. D. Moody. Am Inst Arch J 4:119-20 Mr '16
Newark commission urges importance of city plan. Eng Rec 73:245-6 F 19 '16
Pastorius park, Philadelphia and its residential development. H. D. Eberlein. il plans Arch Rec 39:24-39 Ja '16
Plan for Ottawa, the capital of the Dominion of Canada. E. H. Bennett. Am Inst Arch J 4:263-5, pl 1-4 Je '16
Planning problems of cities in the smaller class. J. Nolen. Eng N 76:102-3 J1 20 '16
Planning Sacramento. map Munic J 40:493 Ap 6 '16
Planning the industrial town of Iroquois Falls, Ontario. A. P. Melton. plan Eng & Contr 45:524-6 Je 7 '16
Practical street construction. il diags Munic J 40:1-7, 40-3, 74-7, 105-8, 201-2, 237-40, 269-71, 327-30, 365-8, 399-402, 433-6, 510-12, 545-8, 580-2, 613-16, 651-2, 685-8, 719-22, 861-3, 894-5; 41:4-5, 35-6, 70-1, 98-9 Ja 6-27, F 10-24, Mr 9-30, Ap 13-My 25, Je 22-J1 27 '16
Replanning Athens—capital of Greece. il Am Inst Arch J 4:339-40 Ag '16
Re-planning burnt Phoenix, N. Y. plan Munic J 41:550-1 N 2 '16
Replating a city area. C. F. Fisher. plans Munic J 40:892-3 Je 29 '16
Report of committee of American water works association on city planning. Am Water Works Assn J 3:704-6 S '16
Street planning in Newark. il diags plans Munic J 40:297-301 Mr 2 '16

City planning—Continued

Street planning in Riverside, Cal. Munic J 11:356 S 21 '16

Town planning and housing. See monthly numbers of the Journal of the American institute of architects

Town planning in Canada. T: Adams. Eng N 75:991-2 My 25 '16

Town planning in Doncaster. Munic J 41:352 S 21 '16

See also Building laws; Housing problem; Model towns; Municipal centers; Parks; Social centers; Streets; Water fronts

Bibliography

Residential and industrial districts in cities. H. A. Rider. Special Libraries 7:2-7 Ja '16

Zone system

Beauty snubbed by city-planners. G: B. Ford. Am Inst Arch J 4:296-7 Je '16

Building restriction in New York. Munic J 41:158-9, 191-2 Ag 10-17 '16

City planning by the zoning system in the Bronx. map Eng N 75:700 Ap 13 '16

Grading the height, size, and use of all buildings in New York. G: B. Ford. Am Inst Arch J 4:204-6 My '16

New zoning law, New York. Brickb 25:304 N '16

Replanning and districting Sacramento, Calif. il maps Eng N 76:444-5 S 7 '16

Shall we save New York? F: L. Ackerman. Am Inst Arch J 4:160-1 Ap '16

City surveying. See Surveying**Civic centers. See Municipal centers****Civil engineering**

Registration in civil engineering is decreasing. Eng Rec 72:766 D 18 '15

Why is registration in civil engineering decreasing? Eng Rec 73:25-6, 57-9, 88-90, 155-6, 185-7, 260, 291-2 Ja 1-15, 29-F 5, 19-26 '16

See also Aqueducts; Arches; Blasting; Breakwaters; Bridges; Building; Canals; Cofferdams; Curves; Dams; Docks; Drainage; Dredging; Drilling and boring (earth and rocks); Earthwork; Embankments; Engineering; Excavation; Flood control; Foundations; Grading; Groins; Harbors; Highway engineering; Irrigation; Mensuration; Mining engineering; Piles and pile driving; Public works; Railroad engineering; Railroads—Construction; Rivers; Roads; Sanitary engineering; Shore protection; Steel construction; Strains and stresses; Streets; Strength of materials; Subways; Surveying; Tunnels and tunneling; Walls; Water supply; Water supply engineering

Civil engineers

Advancement of the profession of the civil engineer; abstracts. C. Herschel. Eng N 75: 1250-1 Je 29 '16; Eng Rec 74:9-10 Jl 1 '16

Civil engineers selected for nation-wide inventory of industrial resources. Eng Rec 73: 559-60 Ap 22 '16

Forty-five thousand draftsmen and designers and fifty-two thousand civil engineers and surveyors in 1910. Eng & Contr 46:186 Ag 30 '16

Thirty-three years of the life of a successful engineer. Eng N 75:500 Mr 16 '16

See also Engineers

Civil engineers, American society of. See American society of civil engineers**Civil engineers, Institution of. See Institution of civil engineers****Civil service**

Public service opportunity and preparedness. J. L. Jacobs. W Soc E J 21:495-520 Je '16; Excerpts. Eng & Contr 46:257-8 S 20 '16; Discussion. W Soc E J 21:521-6 Je '16

See also Civil service pensions

Examinations

Examination questions for engineer-draftsman. Eng N 74:1107 D 9 '15

Home examination for assistant building inspector. Eng N 74:1128 D 9 '15

United States civil service examination for valuation analyst. Am Gas Light J 104:247 Ap 17 '16

New York (state)

New York engineer positions standardized. Eng N 75:654-5 Ap 6 '16

Civil service pensions

Pensions of New York city employees. Munic J 41:241-2 Ag 24 '16

Claim agents

Relation of the claim department to the public. F. J. Lonergan. Elec Ry J 48:310 Ag 19 '16

Claim agents' association, Pacific. See Pacific claim agents' association

Claims. See Railroads—Claims; Steamboat lines—Claims; Street railroads—Claims

Clam shells

Combination gravel and clam shell road. diag Eng & Contr 46:110 Ag 2 '16

Clamps

Clamps for pulling steel piles. diags Eng N 75:472 Mr 9 '16

Jig and fixture details—clamps and straps. R. F. Pohle. diags Mach 22:839-41 Je '16

Novel insulator clamp. diags Elec Ry J 48: 544-5 S 23 '16

Quick adjustment planer clamps. R. W. Rogers. diags Ry Mech Eng 90:44 Ja '16

Classification

Taylor system applied in Franklin management. G: D. Babcock. il diags Ind Management 52:117-85 N '16

See also Files and filing (documents); Indexing

Classification, Decimal

Engineers' technical file should be small, up-to-date and easily kept. L. B. Krause. Eng Rec 72:760-1 D 18 '15

Filing technical literature. E: B. Durham. Eng & Min J 101:784-6 Ap 29 '16

Classification of technical literature, Joint committee on. See Joint committee on classification of technical literature

Classifiers

Allen automatic classifier. J. W. Crowder. il diags Eng & Min J 102:507-8 S 16 '16

Classifying. J: V. N. Dorr. Met & Chem Eng 14:295-7 Mr 15 '16

Combined hydraulic and mechanical classifier. M. G. F. Sohnlein. diags plan Am Inst Min E Bul 112:715-20 Ap '16; Excerpts. Met & Chem Eng 14:538 My 1 '16; Excerpt. Eng & Min J 102:182 Jl 22 '16

Grading industries. E: S. Wiard. il diags Met & Chem Eng 14:92-3 Ja 15 '16

Rotary-screen ore classifier. C: Spearman. diags Eng & Min J 101:691-2 Ap 15 '16

Wagner hydraulic classifier. il Eng & Min J 102:791 O 28 '16

Clay

Copper deposits in the "Red Beds" of Texas. L: M. Richard. Econ Geol 10:634-50 N '15

Modeling clay as an adjunct to the foundry. C. Vickers. il Foundry 44:68-70 F '16

Polishing metal with clay. il Sci Am S 81:381 Je 10 '16

Relation of clay to ore-dressing and cyanidation. A. W. Allen. Met & Chem Eng 14:245-6 Mr 1 '16

See also Bricks; Fire clay; Fuller's earth; Pottery

Clay industries

Casting of clay wares. T. G. McDougal. diags U S Bur Mines Tech Pa 126:1-25 '16

What the Bureau of standards has done for the clay industries. il Sci Am 115:328-9 O 7 '16

See also Bricks; Hollow tile; Porcelain; Pottery

Clay slips. See Coal**Clayton act**

Hearing regarding rules governing purchase of supplies under the Clayton act. Ry R 59: 26 Jl 1 '16

Regulation of railroad purchases. W. L. Stoddard. Ry Age 61:73-4 Jl 14 '16

Cleaning

Different ways to clean material. L. I. Thomas. il Factory 17:143-5, 398-401 Ag, O '16

Cleaning—Continued

Modern methods of cleaning castings. H. C. Estep. *il* Iron Age 98:881-3+ O 19 '16

See also Bleaching; Boiler cleaning; Car cleaning; Filter cleaning; Gas cleaning; Sand washing; Sewer cleaning; Soap; Steel reinforcing bars—Cleaning; Street cleaning; Sweeping compounds; Vacuum cleaners; Water pipes—Cleaning

Cleaning of cities

Paving the slum districts. *Munic J* 41:259-60 Ag 31 '16

See also Street cleaning

Cleaning powders. *See* Soap powders**Cleanliness**

How to increase factory efficiency; cleanliness and comfort. O. M. Becker. *il* Eng M 51:657-72 Ag '16

See also Cleaning; Sanitation

Clearance legislation. *See* Railroads—Clearance**Clearing of land**

Better highway specifications for clearing and grubbing. F. W. Harris. *il* Eng N 74:1240-1 D 23 '15

Charcoal on the hoof. *il* Sci Am 114:643 Je 17 '16

Major results of stump removal investigation conducted by the University of Wisconsin. C. D. Livingston. *Eng & Contr* 46:53 J1 19 '16

Methods employed in grubbing the Kensico reservoir of the Catskill water supply works. G. A. Winsor. *Eng & Contr* 45:56-7 Ja 19 '16; Same. *Eng Rec* 73:92 Ja 15 '16

Methods of removing stumps by blasting. T. M. Knight. *diags Eng & Contr* 46:150-2 Ag 16 '16

Stump pullers operated by hand and horse power. *il* *diags Eng N* 76:223-4 Ag 3 '16

See also Lumbering

Cleats

Electrification of isolated factories; the cleat system. *diags Engineer* 121:310-11 Ap 14 '16

Use of steel cleats. *Iron Tr R* 57:1183 D 16 '15

Cleavage

Reactions resulting in the cleavage of polynuclear aromatic compounds. E. P. Kohler and R. H. Patch. *Am Chem Soc J* 38:1205-16 Je '16

Cleveland, Ohio**Architecture**

Cleveland museum of art. *il* plans *Arch & Bldg* 48:140-4 Ag '16

Cleveland museum of art. I. T. Frary. *il* plans *Arch Rec* 40:195-211 S '16

West Side market house; views and plan. *Brickb* 25:pl 6-7 Ja '16

Bridges

Bridge wrecked by runaway car derailed at curve. *il* *diag Eng N* 76:718-19 O 12 '16

Brooklyn-Brighton concrete viaduct completed. W. H. Baker. *il* *Eng N* 75:489-90 Mr 16 '16

Cleveland bridge problem and a proposed solution. G. B. Ford. *il* *Am Inst Arch J* 4:395-6 S '16

Cleveland's new bridge—the role of the motor truck in its construction. *il* *Sci Am* 115:480 N 25 '16

Half-mile double-deck concrete bridge. *Sci Am* 114:403 Ap 15 '16

Steel spans and concrete arches combined to form unusual bridge at Ninetieth street, Cleveland. *il* *diags Eng Rec* 74:190-3 Ag 12 '16

Industries and resources

Cleveland—rising city in the automobile industry. *Automobile* 35:542-4, 586 S 28-O 5 '16

Cleveland—the industrial giant. *Iron Tr R* 59:sup55-70 S 7 '16

Foundrymen's convention, 1916. R. E. Porter. *il* plan *Metal Ind n s* 14:367-72 S '16

Lighting

Cleveland municipal plant. *Power* 44:389-90 S 12 '16

Cleveland's new street-lighting installation. *il* *Elec R & W Elec'n* 68:750-1 Ap 29 '16

Good showing of Cleveland municipal plant. *Power* 42:908-9 D 28 '15

Operating results of Cleveland municipal lighting plant. F. W. Ballard. *Eng N* 76:603 S 28 '16

Showing of the Cleveland municipal plant. F. W. Ballard. *Power* 43:331-2 Mr 7 '16

Ordinances, etc.

Cleveland limits loads and speed of motor trucks. *Eng N* 76:719 O 12 '16

Railroads

Cleveland & Youngstown R. R. freight terminal project in Cleveland. W. E. Pease. *il* map *Ry R* 57:781-3 D 18 '15

Grade crossing elimination at Cleveland. *il* plan *Ry Age* 60:1335-7 Je 16 '16

Rapid transit

Cleveland builds operating stations. *il* plans *Elec Ry J* 46:356-61; 48:132-5 Ag 28 '15, J1 22 '16

Cleveland street railway situation. F. W. Doolittle. *Munic Eng* 51:132 O '16

Cost of operation in Cleveland. L. R. Nash. *Elec Ry J* 47:455 Mr 4 '16

Railway operation in Cleveland. F. W. Doolittle. *Elec Ry J* 47:359-64 F 19 '16

Sewerage

Cleveland's sewage treated by revolving screens and novel grit chambers. G. B. Gascoigne. *il* *diags plan Eng Rec* 73:408-10 Mr 25 '16

Sewage-testing station report limits processes. *Eng Rec* 74:80-1 J1 15 '16

Trial activated-sludge unit at Cleveland, Ohio. R. W. Pratt. *il* *diags Eng N* 75:671-2 Ap 6 '16

Streets

Street cleaning in Cleveland. *Munic J* 40:47 Ja 13 '16

Street cleaning problem. G. H. Hanna. *il* *Munic Eng* 50:26-8 Ja '16; Same. *Munic J* 40:7-9 Ja 6 '16; Same. *Eng & Contr* 45:20-2 Ja 5 '16; Abstract. *Good Roads n s* 11:108-9 Mr 4 '16; Excerpts. *Eng Rec* 73:83 Ja 15 '16

Water supply

Cleveland water-supply to be purified and softened. *il* *diags plan Eng N* 76:732-5 O 19 '16

Cleveland, Cincinnati, Chicago & St. Louis railway company

Annual report for 1915. *Ry Age* 60:872-3, 933-4 Ap 21 '16

Cleveland engineering society

Cleveland engineering society to the rescue. C. E. Drayer. *Eng N* 76:328 Ag 17 '16

Cleveland industrial development company

Industrial preparedness for peace. *Sci Am* 114:411+ Ap 15 '16

Cleveland typographical union

Educational plan. *Inland Ptr* 57:93-4 Ap '16

Cliff dwellings

Ancient cliff dwellings of the Mesa Verde. M. Daniels. *il* *Am Inst Arch J* 4:384-8 S '16

Clifton-Morenci mining district

Mineralization at Clifton-Morenci. L. E. Reber, Jr. pls map *Econ Geol* 11:528-73 Ag '16

Climate

Climatology and the war. *Sci Am* 114:524 My 20 '16

Currents of Lake Michigan and their influence on the climate of the neighboring states. C. M. Townsend. map *W Soc E J* 21:293-305; Discussion. 305-9 Ap '16

Climatology, Medical

Physician and the weather bureau. F. A. Carpenter. *Sci Am S* 81:178-9 Mr 18 '16

Clinkers

Clinkering of bituminous coal. F. C. Hubley. *diags Power* 44:523-5, 550-2, 591-3, 649-51 O 10-24, N 7 '16

Clocks

Battery-operated clock. *il* *Elec W* 67:1488 Je 24 '16

Clock faces and hands. *Sci Am S* 82:253 O 14 '16

Clocks—Continued

- Clock on the Green, Waterbury, Conn. il Arch Rec 40:192 Ag '16
 Clock troubles. G. H. Gardner. Mach 23:161 O '16
 Competitive designs for an ornamental street clock. il Brickb 25:104-6 Ap '16
 Concrete clock dials—Boston custom house. W. B. Conant. il Concrete 8:124 Mr '16
 Electric timing and program system. il Elec W 66:1389 D 18 '15
 Electrically wound contact-making clock. il Elec R & W Elec'n 68:396 My 27 '16
 Electro-magnetic clock that runs two years without attention. il Sci Am 115:218-19 S 2 '16

See also Watches

Repair

- Scientific clock repairing. W. L. Goodrich. Mach 22:984-5 Jl '16

Cloth. See Textile industry and fabrics**Cloth cutters. See Cutting machines (for textiles)****Clothing**

See also Bathing suits; Buttons; Gloves; Hosiery; Tailoring; Underwear; Union suits

Clothing factories

- Data on motor drive in clothing factories. il Elec W 67:279 Ja 29 '16

Clothing trade

- Great requirements of Russia; textile industries. W. Aisenman. Am Ind 17:27-31 N '16
 Men's factory-made clothing industry. il U S Bur For & Dom Com misc ser 34:1-300 '16
 Women's muslin-underwear industry. U S Bur For & Dom Com misc ser 29:1-184 '15

See also Hosiery trade; Shirts

Clover

- Sweet clover; gaining in favor as a cultivated crop. Sci Am S 81:263 Ap 22 '16

Club rooms

- Lighting club rooms. E. L. Godinez. il Arch & Bldg 47:456-7 D '15

Clubhouses

- Club house buildings. il plans Arch & Bldg 47:425-55 D '15
 Club-house of the St. Louis architectural club. J. L. Mauran. il plans Am Inst Arch J 4:198-9 My '16
 Electrical installation in a large modern club house; South Shore country club, Chicago. il Elec R & W Elec'n 68:594-8 Ap 1 '16
 Floor plans for technical club house. C. G. Hehn. plan Bldg Age 38:48 O '16
 Friars club, New York. H. Fisher. il plans Arch Rec 40:212-22 S '16
 Friars' club, 110 W. 48th st., New York city; views. Arch & Bldg 48:122-4, sup19 Jl '16
 Independent system of mechanical and gravity heating and ventilation designed for the new addition to the Harvard club, New York. diags plans Metal Work 86:37-41 Jl 14 '16
 New home of Worcester country club. il plans Bldg Age 38:29-32 Ap '16
 Plumbing installation in the Yale club building in New York city. E. R. Porter. diag plans Dom Eng 76:56-8, 89-91 Jl 8-15 '16
 Plumbing system in the South Shore country club at Chicago, Illinois. il plan Dom Eng 76:456-8 S 30 '16
 Roxbury boys' club, Roxbury, Mass. il plans Brickb 25:21-2 Ja '16
 South Shore country club, Chicago; Marshall & Fox, arch'ts. P. B. Wight. il plans Arch Rec 40:418-33 N '16

See also Club rooms

Clubs. See Country clubs—Accounting; Factory clubs**Clutches**

- Effective clutch mechanism. H. E. White. diag Mach 22:696-7 Ap '16
 Friction clutches. W. G. Gass. Engineer 122:236-400 N 3 '16
 Hilliard clutch with Chapman ball bearing sleeve. diag Textile World 51:2663 Je 3 '16
 Milling double-angle clutch teeth. D. Petri-Palmedo. diag Mach 23:58-9 S '16
 Multiple-disk clutch for split-phase motors. diag Elec R & W Elec'n 69:213-14 Jl 29 '16; Elec W 68:143-4 Jl 15 '16

- Standard makes of friction clutches. Am Soc M E J 38:834 O '16
 Use of magnetic clutches in Wisconsin station to operate generators from engines or water wheels. W. H. Costello. il diag Elec W 68:372-3 Ag 19 '16
 Woodhouse automatic clutch. il diag Engineer 122:400 N 3 '16

Clutches (automobile). See Automobiles—Clutches**Coal**

- Better coal standard. X. W. Putnam. il Coal Age 10:184-5 Jl 29 '16
 Bituminous or buckwheat? Eng M 51:283 My '16
 Briquetted lignite coal. H. L. McDonald. Power 43:419-20 Mr 21 '16
 Burning barley coal. A. A. Norrman. Power 43:412-13 Mr 21 '16
 Burning coal in the army. M. Wilder. il map Coal Age 8:1016-18 D 18 '15
 Burning no. 3 buckwheat coal on a Coxse stoker. B. B. Hood. diag Power 43:881-2 Je 20 '16
 Coal and coke. Metal Work 85:165 Ja 28 '16
 Coal consumption required for certain pump duty; chart. Elec W 68:1105 D 2 '16
 Coal for malleable work. F. Van O'Linda. Foundry 44:118-19 Mr '16
 Coal output deficiency. Engineer 122:370 O 27 '16
 Coal required by power plants. R. Traut-schold. Power 43:816 Je 6 '16
 Coal wastage. Engineer 122:121-2 Ag 11 '16
 Coal wealth of United States and industrial supremacy. Eng N 76:758-9 O 19 '16
 Coking and caking coal. S. H. Viall. Power 43:432-4 Mr 28 '16
 Discussion on fuel economy at British association annual meeting, 1916. Engineer 122:275-6 S 29 '16
 Economic aspects of the new anthracite sizes. Coal Age 9:839-41 My 13 '16
 Economical use of coal. Engineer 121:230-1 Mr 17 '16
 Effect of noncombustible content of coal. T. B. Coghlan. Power 43:853 Je 13 '16
 Estimating the tons of coal in a pile; chart. W. F. Schaphorst. Gas Age 38:290 S 15 '16; Same. Iron Age 98:711 S 28 '16
 Fuel-combustion improvers. chart Coal Age 8:965-7 D 11 '15
 Fuel economy and the proper utilization of coal. W. A. Bone. Sci Am S 82:175-6 S 9 '16
 Fuel values for Alaska coal for marine service. L. R. W. Allison. Int Marine Eng 21:398 S '16
 Fuels for steam boilers. W. Kent. Power 43:454-6 Mr 28 '16
 Graphical determination of thermal value of coal. W. C. Stripe. Power 43:46-7 Ja 11 '16
 Heat value of coal. Coal Age 9:389 F 26 '16; Excerpt. Power 43:439 Mr 28 '16
 Inspection of anthracite coal. A. J. Thompson. Coal Age 10:219 Ag 5 '16
 Is there a gain in heat when burning watered coal? R. I. Elkin. Elec W 67:97-8 Ja 8 '16; Same. Am Gas Light J 104:82 F 7 '16
 New anthracite sizes. Coal Age 9:683 Ap 15 '16
 New anthracite sizes out. Coal Age 9:1090 Je 24 '16
 New York's coal consumption. Coal Age 10:108 Jl 15 '16
 Origin of clay slips. W. B. Wilson. Econ Geol 11:381-9 Je '16
 Percentage of sulphur in coal. Coal Age 9:266 F 5 '16
 Prevention of spontaneous combustion of coal. J. F. Springer. Ry Mech Eng 90:179-80 Ap '16
 Report on the power session of the British association. Power 44:572-3 O 17 '16
 Resins in coal. Metal Work 86:492 O 20 '16
 Some properties of the water in coal. H. C. Porter and O. C. Ralston. diag U S Bur Mines Tech Pa 113:1-28 '16
 Specific gravity studies of Illinois coal. M. L. Nebel. il diags Ill U Eng Exp Sta Bul 80:1-49 '16; Abstract. Am Soc M E J 38:1035-6 D '16
 Spontaneous combustion of coal. J. F. Springer. Ry Mech Eng 90:124-6 Mr '16
 Tons of coal a bin will hold; chart. W. F. Schaphorst. Gas Age 38:233 S 1 '16

Coal—Continued

- Truth about Rhode Island coal. Eng M 50:612 Ja '16
 Wastefulness in Great Britain. W: Garforth. Coal Age 10:711 O 28 '16
 Wetting coal to reduce waste. C. A. Morris; R. K. Long. Power 44:321 Ag 29 '16
 Wetting coal to reduce waste. J. A. McGilivray. Power 44:177 Ag 1 '16
See also Briquetting; Coal ashes; Coal distillation; Coal handling; Coal mines and mining; Coal preparation; Coal storage; Coal-tar colors; Coal-tar products; Coal testing; Coal trade; Coke; Fuel; Fuel economy; Gas; Lignite

Analysis

- Application and earning power of chemistry in the coal mining industry. E. M. Chance. Am Inst Min E Bul 112:711-14 Ap '16; Same. Met & Chem Eng 14:440-1 Ap 15 '16
 Coal and coke efficiency in blast furnace operation. B. F. Burman. Met & Chem Eng 14:137-40 F 1 '16
 Efficiency in the utility plant; charts. C. Grossmann. Power 43:490-1 Ap 4 '16; Eng & Contr 45:163 F 16 '16
 Graphic studies of ultimate analyses of coals. O. C. Ralston. bibliog diags U S Bur Mines Tech Pa 93:1-38 '15; Excerpt. Elec W 68:229 Jl 29 '16
 Interpretation of coal analysis. E. G. Bailey. J Ind & Eng Chem 8:839-41 S '16; Same cond. Ry Age 60:1083-5 My 19 '16; Same cond. Ry Mech Eng 90:285-6 Je '16; Abstract. Ry R 58:723 My 20 '16
 Storage of coal. J. B. C. Kershaw. Coal Age 8:962-4 D 11 '15

By-products

- See* Coal distillation; Coal-tar products; Coke manufacture—By-products

Clinkers*See* Clinkers**Cost**

- Chart for determining the cost of coal on the heat value basis. W. F. Schaphorst. Ry R 59:422 S 23 '16; Same. Am Soc M E J 38:1036-7 D '16
 Cost of coal. G. O. Smith and C. E. Leshner. Met & Chem Eng 15:631-5 D 1 '16
 Relative costs of coal and of oil fuels. F. C. Pearing. Power 42:826-7 D 14 '15; Same. Eng & Min J 101:555-6 Mr 25 '16

Prices

- See* Coal prices; Coal purchasing; Coal trade

Specifications

- Methods of sampling delivered coal, and types of specifications for the purchase of coal for the government. G. S. Pope. U S Bur Mines Bul 116:40-58 '16

See also Coal purchasing**Testing***See* Coal testing**Transportation**

- Analysis of the coal car situation. A. T. Sherrick. Coal Age 10:543-5 S 30 '16
 Threatened coal famine. Ry Age 61:840 N 10 '16

See also Coal handling**Coal, Pulverized**

- Apparatus for burning cement and recovering the dust; patented by H. J. Seaman. Met & Chem Eng 15:360 S 15 '16
 Applications of powdered coal fuel steadily increasing. Eng N 76:177-8 Jl 27 '16
 Bettington boiler for powdered coal. R. T. Mawdesley. diag Elec W 67:610-11 Mr 11 '16
 Burning pulverized culm at the mines. R. Trauttschold. Coal Age 10:103 Jl 15 '16
 Changes in smelting practice of Anaconda copper mining co. F. Laist. U S Bur Mines Bul 102:635-8 O 7 '16
 Coal-dust firing in reverberatory furnaces. C. R. Kuzell. diags Eng & Min J 101:302-6 F 12 '16; Excerpt. Met & Chem Eng 14:338 Mr 15 '16

- Coal-dust locomotive. H. T. Walker. U S Sci Am 114:322 Mr 25 '16
 Copper smelting at Naltagua in central Chile. M. L. Lamb. U S Eng & Min J 102:777-80 O 28 '16
 Dried, powdered lignite as fuel. Coal Age 9:942 My 27 '16
 Electricity in a steel rolling mill. W. L. Berry. U S Elec R & W Elec'n 69:840-1 N 11 '16
 Exhibit of a powdered fuel burning locomotive. Delaware & Hudson co. U S Ry R 58:819 Je 10 '16
 How burning powdered coal may dispel the city smoke nuisance. Eng & Contr 46:168 Ag 23 '16
 Important installation of pulverized coal under stationary boilers. U S Met & Chem Eng 15:365-6 S 15 '16
 Locomotive problems that demand solution. G. M. Basford. Ry Age 61:540 S 29 '16; Same. Ry R 59:458-9 S 30 '16
 North Western pulverized coal locomotive. U S Ry Age 61:227-30 Ag 11 '16
 Pneumatic powdered coal system. U S Met & Chem Eng 15:217 Ag 15 '16
 Powdered coal as a fuel. J. Harrington. Am Soc M E J 38:796-9 O '16; Same. Power 44:76-7 Jl 11 '16; Same cond. Ry Mech Eng 90:399-400 Ag '16; Same cond. Sci Am S 82:287 O 28 '16; Excerpt. Iron Age 97:1255 My 25 '16
 Powdered coal as a fuel in malleable shops. J. Harrington. Foundry 44:388-9, 442-3 S-O '16
 Powdered coal burning. plans Iron Age 98:134-6 Jl 20 '16
 Powdered coal for forging furnaces; abstract. A. A. Holbeck. Iron Age 97:1449 Je 15 '16
 Powdered coal in engine service. C. W. Corning. U S Ry Mech Eng 90:565-8 N '16
 Powdered fuel; report of committee of American railway master mechanics' association. Ry R 58:935-6 Je 24 '16
 Powdered fuel; report of committee of International railway fuel association with discussion. Ry Age 60:1081-3 My 19 '16; Same. Ry R 58:720-3 My 20 '16; Same. Ry Mech Eng 90:279-81 Je '16; Same cond. Am Soc M E J 38:798 O '16; Summary. Iron Age 97:1254 My 25 '16; Same. Sci Am S 82:320 N 11 '16
 Problems in burning powdered coal. A. S. Mann. U S diags Gen Elec R 18:920-4, 959-65 S-O '15; Same. Iron Age 96:632-4 S 16 '15; Same cond. Iron Tr R 58:229-32 Ja 27 '16
 Pulverized coal for open hearths. J. W. Fuller. U S diags plan Iron Tr R 59:898-903 N 2 '16; Abstract with discussion. Iron Age 98:1037-9 N 2 '16
 Pulverized coal for the open hearth. J. P. Kittredge. Iron Tr R 59:949 N 9 '16
 Pulverized coal—its preparation and use in industrial furnaces. S. H. Harrison. U S diags plans Eng M 50:742-53 F '16
 Pulverized fuel for locomotives; abstracts. J. E. Muhlfield. U S diags Am Soc M E J 38:983-90 D '16; Ry R 58:299-303 F 26 '16; Ry Mech Eng 90:114-18 Mr '16; Ry Age 60:349-53 F 25 '16
 Pulverized fuel for stationary boilers on the Missouri, Kansas & Texas. U S Ry Mech Eng 90:499-502 O '16; Same cond. Ry Age 61:549-51 S 29 '16; Excerpts. Am Soc M E J 38:932 N '16
 Pulverized-fuel installation serving ten 250-h.p. O'Brien boilers. H. G. Barnhurst. Am Soc M E J 38:799-801 O '16
 Regenerators above an open-hearth furnace using powdered coal. diag Iron Age 97:1199 My 18 '16
 Roasting-matting of copper ores in fine condition. diag Eng & Min J 101:479 Mr 11 '16
 Use of low-grade fuel in Europe. R. H. Fernald. diag U S Bur Mines Tech Pa 123:33-5 '15; Excerpt (Bettington boiler for pulverized fuel). Eng M 50:771 F '16
 Use of powdered coal as a fuel. C. L. Heisler. U S diags Am Soc M E J 38:999-1001 D '16
 Use of powdered coal in metallurgical processes; a discussion of the engineering principles involved. C. J. Gadd. diags J Fr Inst 182:323-52 S '16; Abstract. Iron Age 97:890-5 Ap 13 '16; Abstract. Am Soc M E J 38:423-4 My '16
 Utilizing powdered coal at Lebanon, Pa. diags Iron Age 97:1317-19 Je 1 '16

Coal ashes

Chemistry in coal mining; with table showing varying fusibility of coal ash. A. G. Blakeley. *Coal Age* 10:297 Ag 19 '16

Clinkering of bituminous coal. F. C. Hubley. *Eng. Power* 11:523-5, 550-2, 591-3, 649-51 O 10-21, N 7 '16

Loss due to combustible in ash. E. R. Andrix. *Power* 43:450 Mr 28 '16

Loss due to combustible in ash. R. Traut-schold. *Power* 43:256-7 F 22 '16

Results of analyses of garbage and waste; analyses of ashes. I. S. Osborn. *Eng N* 76: 549 Ag 21 '16

Coal bins

Cost of coating coal bunkers with a cement gun. *Eng & Contr* 46:369 O 25 '16

Tons of coal a bin will hold; chart. W. F. Schaphorst. *Gas Age* 38:233 S 1 '16

Coal breakers

Large anthracite breakers. *il Coal Age* 9:796-7 My 6 '16

Loomis colliery. C. M. Young. *il Coal Age* 9: 113-17 Mr 4 '16

Tests on various electric motor-driven equipment used in the preparation of anthracite coal. H. M. Warren, A. S. Biesecker and E. J. Powell. *Am Inst Min E Bul* 110:181-93 F '16; Discussion. 113:901-2 My '16

Coal cutters

Application of correct methods. E. C. De Wolfe. *il Coal Age* 9:571-3 Ap 1 '16

Coal cutting machines and output. *Engineer* 120:600 D 24 '15

Compressed-air coal cutters in Canadian mines. S. W. Symons. *il Coal Age* 10:28-9 Jl 1 '16

Electrically operated coal cutter of English design. *il Sci Am* 114:279 Mr 11 '16

Explosion-proof motors operating in mines. C. W. Larson. *il Gen Elec R* 19:648 Jl '16

Model mine and camp. C. J. Fuetter. *il Coal Age* 9:290-2 F 12 '16

Oldroyd mining machine. *il Coal Age* 9:1018 Je 10 '16

Permissible coal cutters. *il Coal Age* 9:326-8 F 19 '16

Coal distillation

Birmingham tests indicate that coal-gas pitch can be carbonized without difficulty in horizontal retorts. E. W. Smith. *Am Gas Light J* 105:55 Jl 24 '16

Coal-gas residuals and their application. F. H. Wagner. *J Fr Inst* 181:505-24 Ap '16; Same. *Met & Chem Eng* 14:493-500 My 1 '16

Coal tar and its products. *Eng & Min J* 101: 7-8 Ja 1 '16; Abstract. *Eng M* 50:788 F '16

Diagram of products derived from coal and some of their uses. *Iron Tr R* 58:1322 Je 15 '16; Same. *Coal Age* 10:345 Ag 26 '16

Distillation of Colorado lignite. A. J. Hoskin. *il Coal Age* 9:665-7 Ap 15 '16

Electricity and the economical use of coal. R. A. Chattock. *Engineer* 122:348 O 20 '16

Electricity in a coal-refining plant. F. D. Burr. *il Elec R & W Elec'n* 68:366-8 F 26 '16

Explosibility of gases from mine fires. G. A. Burrell and G. G. Oberfell. *U S Bur Mines Tech Pa* 134:14-19 '15

Fuel economy scheme for Brighton; coalite plant. *Engineer* 122:309-10 O 6 '16

Gas fuel experiments in British stations. *Elec W* 68:917 N 4 '16

Importance of the scientific treatment of coal. S. H. North. *Engineer* 121:193 S 1 '16

Production of oil from coal. *il diags Engineer* 120:598-9 D 24 '15

Utilization of by-products from the manufacture of coke. C. G. Atwater. *Eng Soc W Pa* 32:345-62 My '16; Same. *Gas Age* 38:275-80 S 15 '16; Discussion. *Eng Soc W Pa* 32: 362-80 My '16; Same abr. *Gas Age* 38:337-40 O 2 '16

See also Coal-tar products; Naphthalene

Bibliography

Recovery of benzene, toluene, and related products from coal distillation. M. S. Howard. *U S Bur Mines Bul* 114:215-28 '16

Coal docks. See Coal piers**Coal dust**

Inflammability of Illinois coal dusts. J. K. Clement and L. A. Schoff, jr. *il diag maps U S Bur Mines Bul* 102:1-74 '16

See also Coal, Pulverized

Coal gas. See Coke oven gas; Gas**Coal handling**

Analysis of the motor-truck question. *il Coal Age* 10:422-4 S 9 '16

Auxiliary coaling system at Westport. A. H. Naef. *il Gas Age* 38:521 N 15 '16

British methods of handling coal; great machines employed for loading vessels at the docks. J. Steelman. *il Sci Am S* 82:72-3 Jl 29 '16

Car dumpers in water shipping. S. W. Linn. *il Coal Age* 9:791-4 My 6 '16

Coal breaker and unloader. *il Iron Tr R* 59:889 N 2 '16; *Met & Chem Eng* 15:604-5 N 15 '16; *Iron Age* 98:934-5 O 26 '16

Coal handling in the British waterfront. *il Int Marine Eng* 21:327-8 Jl '16

Coal handling on the Norfolk & Western Ry. *Coal Age* 10:498-9 S 23 '16

Coal shipping from China and Japan. F. J. Warden-Stevens. *il Coal Age* 9:531-3 Mr 25 '16

Coal shipping station at East St. Louis, Illinois. *il diags Eng N* 75:416-17 Mr 2 '16

Concrete coal cylinders built with moving forms. C. H. Higgins. *il Eng N* 75:420-1 Mr 2 '16

Cost of reinforced concrete retaining wall and of special method of handling coal. *diag Eng & Contr* 45:207 Mr 1 '16

Design of plants for dumping coal cars. J. F. Springer. *il Ry Age* 60:1221-2 Je 9 '16

Development of appliances for handling raw materials and merchandise at ports and other large centres of traffic. J. P. Griffith. *Engineer* 122:367, 389-90 O 27-N 3 '16

Economics of material handling in manufacturing plants. R. Trautschold. *il diags Eng M* 51:528-36 Jl '16

European and American tidewater coal docks. J. F. Springer. *il Ry Age* 61:197-200 Ag 4 '16

Fuel supply of a big power plant; storage of coal at New York. J. F. Springer. *il plan Sci Am S* 81:200-1 Mr 25 '16

Gasoline coal loader. *il Coal Age* 8:879 N 27 '15

Handling coal and ashes at Grundy plant, Bristol, Pa. H. J. Edsall. *il plan Power* 44: 480-3 O 3 '16

Handling coal and ashes at Northwest station of Commonwealth Edison co. of Chicago. T. Wilson. *il plan Power* 43:769-71 My 30 '16

Handling coal and bulk materials on a Cleveland dock. *il Iron Age* 96:1413 D 16 '15

Handling coal in large boiler houses. H. V. Schiefer. *il Coal Age* 10:349-51 Ag 26 '16

Handling high coal outputs. H. Reisser. *plan Coal Age* 9:486-7 Mr 18 '16

Handling retail coal in a concrete cylinder plant. C. H. Higgins. *il diags Eng N* 75:736-7 Ap 20 '16; Same. *Coal Age* 9:967-8 Je 3 '16

Insuring the coal supply. H. J. Edsall. *il diags Coal Age* 8:749-56 N 6 '15; Same. *Power* 42: 838-42, 874-8 D 14-21 '15; Same cond. *Textile World* 51:1403+ Mr 11 '16; Abstract. *Iron Tr R* 58:708 Mr 30 '16

Lodge-room engineering. W. O. Rogers. *Power* 43:403-5 Mr 21 '16

Machine that records the volume of coal used by locomotive firemen. *il Sci Am* 115:306 S 30 '16

New methods of handling coal and ore. C. D. Gilpin. *Eng N* 76:169 Jl 27 '16

New portable loader. J. T. Hale. *il Coal Age* 9:574 Ap 1 '16

Power plant at Mooseheart, Ill. T. Wilson. *il diags Power* 43:426-9 Mr 28 '16

Railroad coaling pier to have belt conveyors. *diags Eng N* 75:656-7 Ap 6 '16

Rands shaking loader. *il Coal Age* 9:573-9 Ap 1 '16

Remodeling a boiler plant increases efficiency. *il Power* 43:217-18 F 15 '16

Revolving dumps at coal mines. H. S. Geismer. *il Coal Age* 10:224-5 Ag 5 '16

Successful reduction in coal breakage at tipples. M. Raymond. *il Coal Age* 9:575-7 Ap 1 '16

Coal handling—Continued

Test of motor-driven coal-conveyor system. L. A. Quayle. *U Power* 43:321-2 Mr 7 '16

See also Coal hods; Coal piers; Coal storage; Coaling stations; Coaling vessels

Coal hods

Construction of sheet metal coal hods. *diags* Metal Work 86:206-8 Ag 18 '16

Coal lands

Abstracts of current decisions on mines and mining, May to September, 1915. J. W. Thompson. *U S Bur Mines Bul* 113:9-11 '16
Coal fields of the United States. *Sci Am S* 81: 287 Ap 29 '16

Coal miners

Annual fete day at Ellsworth. R. D. Hall. *il* Coal Age 8:808-11 N 13 '15
Anthracite 8-hr. agreement. *Coal Age* 10:120-1, 276 JI 15, Ag 12 '16
Anthracite labor conference. *Coal Age* 9:378-9 F 26 '16
Anthracite miners' demands. *Coal Age* 8:806 N 13 '15
Efficient coal miner. *Coal Age* 10:196-7, 438-9, 474-5, 512, 555, 651, 686, 818 JI 29, S 9-30, O 14-21, N 11 '16
German miners' daily wage. *Coal Age* 9:682 Ap 15 '16
Labor difficulties in 1915. *Coal Age* 9:84-5 Ja 8 '16
Labor problems at coal mines. J. W. Bischoff. *Coal Age* 8:1058-9 D 25 '15
Labor situation. See weekly numbers of *Coal age*
Miners should work 8 hours. *Coal Age* 10:504-5 S 23 '16
Misleading information about anthracite demands. *Coal Age* 9:256-7 F 5 '16
Paying for the mining of coal. A. M. Iner. *Coal Age* 9:388, 769 F 26, Ap 29 '16
Problem of the loader. J. Keely. *Coal Age* 10: 256-7 Ag 12 '16
Scott Nearing's anthracite. *Coal Age* 9:207-9 Ja 29 '16
Shortage of labor in mining. *Coal Age* 10: 359-60, 475, 514-15, 728, 771, 814-15, 854 Ag 26, S 16-23, O 28-N 18 '16
Treatment for absenteeism at British mines. *Coal Age* 10:503 S 23 '16

Coal mines and mining

Application and earning power of chemistry in the coal mining industry. E. M. Chance. *Am Inst Min E Bul* 112:711-14 Ap '16; Same. *Met & Chem Eng* 14:440-1 Ap 15 '16; Discussion. *Am Inst Min E Bul* 120:2211 D '16
Chemistry in coal mining. A. G. Blakeley. *tables* *Coal Age* 10:296-302 Ag 19 '16
Coal-mine research. J. F. K. Brown. *Coal Age* 9:446-7 Mr 11 '16
Coal stripping in the West. H. S. Mikesell. *Coal Age* 9:164 Ja 22 '16
Coal stripping, Rush Run, Ohio. *il* *Coal Age* 9:161-2 Ja 22 '16
Design of bituminous mining plants. W. A. Weldin. *il* *diags* plans *Eng Soc W Pa* 31: 621-83; Discussion. 683-95 N '15
Details of cutter operations. J. F. K. Brown. *diag* *Coal Age* 8:968 D 11 '15
Drawing room pillars under heavy cover. G. Stockdale. *diag* *Coal Age* 9:1009 Je 10 '16
Economic system of mining. R. J. Sampson. *diags* *Coal Age* 10:494-6 S 23 '16
Electricity in coal mining. C. B. Davis. *Coal Age* 10:633-5 O 14 '16
Establishment of a colliery. J. F. K. Brown. *Coal Age* 10:873-4 N 25 '16
Future mining plants from the engineer's standpoint. O. G. Petersen. *Coal Age* 8:1051-2 D 25 '15
Gaining a maximum tonnage of coal. G. Stockdale. *Coal Age* 8:771-2 N 6 '15
Getting clean coal. T. G. Fear. *Coal Age* 10: 541-2 S 30 '16
Improving quality of pillar coal. E. L. Bailey. *plan* *Coal Age* 9:406-7 Mr 4 '16
Longwall mine reorganized. W. James. *diag* *Coal Age* 9:590 Ap 1 '16
Longwall proposition. *Coal Age* 9:427-8, 510 Mr 4, 18 '16
Methodical pillar drawing. W. N. Wetzel. *Coal Age* 9:535-8 Mr 25 '16
Methods for mining bituminous coal as practiced by the H. C. Frick coke company. P. Mullen. *plans* *Eng Soc W Pa* 32:714-21 N '16

Mine-ventilation stoppings, with especial reference to coal mines in Illinois. R. Y. Williams. *il* *U S Bur Mines Bul* 99:1-25 '15; Conclusions. *Coal Age* 9:376 F 26 '16
Mining by concentration method. *Coal Age* 9: 125-7, 345-6, 546-7 Ja 15, F 19, Mr 25 '16
Mining by concentration method. W. H. Howarth. *plans* *Coal Age* 9:125-7 Ja 15 '16
Mining method in the Connellsville region. P. Mullen. *diags* *Coal Age* 10:700-2 O 28 '16
Mining methods employed in the anthracite field. H. M. Crankshaw. *diags* *Coal Age* 10: 452-5, 490-3, 530-4, 570-5 S 16-O 7 '16
Mining thin coal seams. *Coal Age* 10:82, 118-19, 194, 398-9, 438 JI 8-15, 29-S 9 '16
Modern methods of mining and ventilating thick pitching beds. H. M. Crankshaw. *il* *diags* *Am Inst Min E Bul* 115:1159-69 JI '16
Modern methods of mining coal. P. Mullen. *Iron Tr R* 59:694-5 O 5 '16
Modern mine-plant design. M. L. Hyde. *diags* plans *Coal Age* 8:742-7, 790-4 N 6-13 '15
New method of mining coal; open mining made possible by giant shovels. J. Timmons. *il* *Sci Am S* 81:12 Ja 1 '16
New method of putting in survey stations. H. C. Austin. *diags* *Coal Age* 8:832-3 N 20 '15
Opening shaft mines. L. C. Stevens. *Coal Age* 10:197-8 JI 29 '16
Opening shaft mines. M. L. Hyde. *diags* *Coal Age* 9:910-13 My 27 '16
Output per man here and abroad. S. Dean. *Coal Age* 9:631-3 Ap 8 '16
Panel room-and-pillar mining. A. G. Horrock. *diags* *Coal Age* 9:786-8 My 6 '16
Plant for thin-seam coal. R. G. Read. *il* *diag* *Coal Age* 9:830-1 My 13 '16
Projection of a panel mine. G. E. Greer. *plan* *Coal Age* 8:1061-2 D 25 '15
Puzzle in mining costs. *Coal Age* 9:246-9, 467-8 F 5, Mr 11 '16
Recovery of pillar coal. J. Majer. *Coal Age* 9: 425-6 Mr 4 '16
Rock excavation in coal mines. C. Jackson. *il* *diags* *Coal Age* 10:32-4 JI 1 '16
Selling service to mines. W. D. Roberts. *il* *Elec W* 68:183-5 JI 22 '16
Shaft sinking through soft material. E. A. Sayre. *diags* *Am Inst Min E Bul* 117:1523-30 S '16; Same. *Eng & Contr* 46:259-61 S 20 '16
Steam-shovel coal mining. *Metal Work* 85:4 Ja 7 '16
Steam-shovel coal stripping in the Danville district. *il* *Coal Age* 9:448-52 Mr 11 '16
Stopes filled by flushed sand. R. S. Davies. *Eng & Min J* 102:940-1 N 25 '16
Use of electricity in coal-mining operations. *il* *Elec R & W Elec'n* 69:149-54 JI 22 '16
Utilizing the sulphur in coal. *Coal Age* 10:123 JI 15 '16
Working the Pittsburgh seam. E. Krause. *diag* *Coal Age* 9:893 My 20 '16

See also Coal breakers; Coal cutters; Coal handling; Coal miners; Coal mining machinery; Coal washing; Mine gases; Mining engineering, and references under that subject

Accidents and explosions

Barrackville explosion. *Coal Age* 10:715 O 28 '16
Coal-mine fatalities in the United States, 1870-1914, with statistics of coal production, labor, and mining methods. A. H. Fay. *map* *U S Bur Mines Bul* 115:1-370 '16; Excerpt (Body chart for non-fatal accidents). *Eng & Min J* 101:1030 Je 10 '16; *Coal Age* 9:1056 Je 17 '16
Coal-mine fatalities in the United States, 1915. A. H. Fay. *U S Bur Mines* 1-77 '16; Summary. *Coal Age* 9:420 Mr 4 '16
Disaster at Ravensdale. Wash. *il* *plan* *Coal Age* 9:459-62 Mr 11 '16
Effect of fall of barometer on emission of gas. *Coal Age* 9:550, 684-5, 767 Mr 25, Ap 15, 29 '16
Explosibility of gases from mine fires. G. A. Burrell and G. G. Oberfell. *U S Bur Mines Tech Pa* 134:1-31 '15
Explosion at Bessie mine near Birmingham, Ala. H. S. Geismer. *il* *Coal Age* 10:835-7 N 18 '16
Explosion at Ernest, Penn. *Coal Age* 9:332-3 F 19 '16
Explosion at Marvel, Ala. H. S. Geismer. *il* *Coal Age* 10:760-1 N 4 '16

Coal mines and mining—Accidents—Continued
 Explosion near Kempton, W. Va. map Coal Age 9:498-9 Mr 18 '16
 Inflammability of Illinois coal dusts. J. K. Clement and L. A. Scholl, jr. il diag maps U S Bur Mines Bul 102:1-74 '16
 Interesting fatality figures. Coal Age 9:380 F 26 '16
 Mine explosions. F. Haas. Coal Age 10:418-21 S 9 '16

See also Coal mines and mining—Safety measures; Mine rescue work

Examinations

Coal mining examinations. Coal Age 10:513, 685-6, 729-30, 772-4 S 23, O 21-N 4 '16
 Coal mining examinations at the Bruceton experimental mine. A. Waugh. Coal Age 10:461-2 S 16 '16
 Examination questions. *See* weekly numbers of the Coal age

Explosives

Correct use of explosives in blasting coal. G. L. Yaste. Coal Age 10:385 S 2 '16
 Handling explosives in mines. Coal Age 8:769-70, 9:90, 163-4, 345, 508, 607 N 6 '15, Ja 8, 22, F 19, Mr 18, Ap 1 '16
 Observations and experiences in mine-inspection work. J. J. Rutledge. Coal Age 8:969-71 D 11 '15

Law

See Mining laws

Machinery

See Coal mining machinery

Management

Accounting and engineering show results. Coal Age 10:104-6 J1 15 '16
 Economies in a small coal mine. H. A. Everest. Am Inst Min E Bul 109:165-7 Ja '16; Discussion. 113:982-3 My '16
 Efficiency index for coal mines. S. Smillie. Coal Age 8:740 N 6 '15
 Gaining a maximum tonnage of coal. G. Stockdale. Coal Age 8:771-2 N 6 '15
 Little brass check in the Crow's Nest. E. B. Field. Coal Age 9:488-90 Mr 18 '16
 New thoughts on success. J. Keely. Coal Age 9:628-9 Ap 8 '16
 Safety in wise policy in mining. Coal Age 10:608-9 O 7 '16
 Service and wages. Coal Age 10:650-1, 897-8 O 14, N 25 '16
 When miners are soldiering. Coal Age 10:386-7 S 2 '16

See also Coal mines and mining—Safety measures

Safety measures

Coal mine illumination and its relation to accident prevention and miners' nystagmus; with discussion. R. E. Simpson. Illum Eng Soc 11:137-51 no 2 '16
 Dangers of machine mining in anthracite coal. D. M. Harris. il Coal Age 9:874-6 My 20 '16
 First aid to safety first. F. L. Parker. Coal Age 9:406 Mr 4 '16
 General specifications for rock-dusting machinery. il diag Coal Age 9:672-3 Ap 15 '16; Same cond. (Preventing coal mine explosions with a spray of rock dust). Sci Am 114:419 Ap 22 '16
 How mine safety is increased by compensation laws. H. M. Wilson. Coal Age 10:672-3 O 21 '16
 Inspector's view of mine safety. N. Evans. Coal Age 9:707-8 Ap 22 '16
 Miner and safety first. Coal Age 9:385-6, 723-4, 940-1, 1024-6, 1064; 10:241-2, 278 F 26, Ap 22, My 27, Je 10-17, Ag 5-12 '16
 New firedamp detector; abstracts. G. A. Burrell. il diag Coal Age 9:157-8 Ja 22 '16; Eng M 50:940 Mr '16; J Ind & Eng Chem 8:365-6 Ap '16; Sci Am 114:422 Ap 22 '16
 Pipe for cleaning and rock-dusting mine roadways. diag Coal Age 10:870-1 N 25 '16
 Safety and efficiency in coal mining. E. H. Cox. Coal Age 10:176-8 J1 29 '16
 Safety and efficiency in coal mining. J. Lloyd. il Coal Age 10:332-4 Ag 26 '16
 Safety and efficiency in mining. Coal Age 10:609-10 O 7 '16

Safety first in coal mine and coke plant. il Iron Age 9:714-17 Mr 23 '16
 Safety in loading coal. il Coal Age 8:881 N 27 '15
 Season of explosions. J. W. Powell. Coal Age 10:458-60 S 16 '16
 Shot firing in coal mines by electricity controlled from outside. H. H. Clark, N. V. Breth and C. M. Means. U S Bur Mines Tech Pa 108:1-33 '15
 Susquehanna's safety methods. R. D. Hall. il diag Coal Age 8:765-7 N 6 '15
 Under officials' relation to accidents in mines. W. H. Johnston. Coal Age 9:832-3 My 13 '16
See also Mining engineering—Safety measures

Tables, calculations, etc.

Study course in coal mining. J. T. Beard. *See* weekly numbers of the Coal age
 Table for computing the mine yardage. V. S. Veazey. Coal Age 9:668 Ap 15 '16

Valuation

Valuation of anthracite mines. R. V. Norris. Sch Mines Q 36:313-25 J1 '15

Alaska

Coal mining in Alaska, 1915. S. S. Smith. Coal Age 9:57 Ja 8 '16

Alberta

Mining plant of the Red Deer valley coal co. Coal Age 10:183 J1 29 '16

British Columbia

Coal in British Columbia, 1915. E. Jacobs. Coal Age 9:58 Ja 8 '16

China

Coal fields of the province of Kwangtung, China. Coal Age 10:346-7 Ag 26 '16

France

Working of an 18-in. seam in northern France. G. Liebiez. plan Coal Age 10:302 Ag 19 '16

Germany

Brown-coal mining in Germany. G. J. Young. il diag plan Am Inst Min E Bul 110:327-42 F '16; Abstract. Iron Age 9:375 F 10 '16

Illinois

Coal mining in northern Illinois. Coal Age 10:112 J1 15 '16
 Steam-shovel coal stripping in the Danville district. il Coal Age 9:448-52 Mr 11 '16
 Steep-seam longwall in Illinois. C. A. Herbert. diag Coal Age 9:1050 Je 17 '16
 Superior coal co.'s mines. il Coal Age 8:882 N 27 '15

Indiana

Oliphant-Johnson coal co.'s mine No. 1. il plan Coal Age 9:409-12 Mr 4 '16

Kentucky

Elkhorn coal co.'s plant. W. B. Webb. il Coal Age 10:264-5 Ag 12 '16

Nova Scotia

Coal industry in Nova Scotia. Coal Age 9:57 Ja 8 '16

Ohio

Old Ohio mine without railroad connections. W. G. Burroughs. il Coal Age 10:800-1 N 11 '16

Pennsylvania

Anthracite statistics for 1915. Coal Age 9:1017 Je 10 '16
 Cave at the Prospect colliery. C. M. Young. il Coal Age 9:373-5 F 26 '16
 Data in anthracite mining including costs. Coal Age 10:161 J1 22 '16
 Interesting Pennsylvania mine at Lucerne. J. P. Vogel. il Coal Age 8:794-6 N 13 '15
 Locust Mountain colliery. C. M. Young. diag Coal Age 9:702-4 Ap 22 '16
 Loomis colliery. C. M. Young. il Coal Age 9:413-17 Mr 4 '16
 Mining the Mammoth vein with steam shovels. D. C. Helms. il Coal Age 9:322-5 F 19 '16
 More mine cave-ins threaten parts of Scranton. il Eng N 76:280-2 Ag 10 '16
 New operation in an old field. C. M. Young. il Coal Age 9:329-31 F 19 '16

Coal mines and mining—Pennsylvania —Cont.

- Production efficiency of various companies in central Pennsylvania; tabulation. S. Smillie. Coal Age 8:740 N 6 '15
 Scraper mining for low veins. diag Coal Age 9:1044-5 Je 17 '16
 Underwood—a modern colliery. C. M. Young. il Coal Age 9:4-11 Ja 1 '16

Peru

- Cerro de Pasco coal field in central Peru. Coal Age 10:339 Ag 26 '16

Philippine Islands

- Coal in the Philippines. W. E. Pratt. il Coal Age 9:491-7 Mr 18 '16

Turkey

- Fuel in Turkey. L. Dominican. Am Inst Min E Bul 114:1013-22 Je 1 '16

United States

- Anthracite labor shortage. Coal Age 10:456-7 S 16 '16
 Events of the past year. Coal Age 9:59-60 Ja 8 '16
 History of coal in the United States. Sci Am S 41:153 Mr 1 '16
 Reviews of coal mining in 1915. Coal Age 9:38-57 Ja 8 '16

Utah

- Coal-mining methods in Utah. A. C. Watts. diags Coal Age 10:214-19, 258-62 Ag 5-12 '16

Wales

- Importance of the Welsh coal fields. Coal Age 8:1012 D 18 '15

Washington

- Working a steep coal seam by the longwall method. S. H. Ash. il diags plan Coal Age 9:742-5 Ap 29 '16

West Virginia

- Model mine and camp. C. J. Fuetter. il Coal Age 9:290-2 F 12 '16

Wyoming

- Coal mining in northern Wyoming. M. F. Pel-tier. il Coal Age 10:832-4 N 18 '16

Coal mining institute, Rocky mountain. See Rocky mountain coal mining institute**Coal mining machinery**

- Coal-face conveyors employed in the United Kingdom. S. F. Walker. il diags Coal Age 10:744-8, 790-4 N 4-11 '16
 Mining thin coal beds with air punchers. S. W. Symons. il Coal Age 10:632 O 14 '16
 Power-driven coal auger. Coal Age 8:885 N 27 '15
 When machines are soldiering. Coal Age 10:386-7 S 2 '16

See also Coal breakers; Coal cutters

Coal piers

- Better docks for less money; reinforced concrete proves ideal material for pier construction. H. M. Farrand. il diag Int Marine Eng 21:468-9 O '16
 Coal dock for the Southern at Charleston. S. C. il plan map Ry Age 60:61-4 Ja 14 '16
 Coal pier, Baltimore & Ohio R. R., Baltimore, Md. plans Ry R 58:3 Ja 1 '16
 Coal pier for the Baltimore & Ohio, Baltimore, Md. diags Ry Age 60:169 Ja 28 '16
 Coal pier of the B. & O. R. R., at Curtis bay, Baltimore. il diags Ry R 59:369-72 S 16 '16
 European and American tidewater coal docks. J. F. Springer. il Ry Age 61:197-200 Ag 4 '16
 Reinforced-concrete coal pier for Pennsylvania R. R. at Baltimore. diags Eng N 75:399 Mr 2 '16
 Southern railway coaling pier at Charleston, S. C. il Int Marine Eng 21:58-9 F '16

See also Coal handling

Coal pockets. See Coal handling**Coal preparation**

- Dry preparation of bituminous coal at Illinois mines. E. A. Holbrook. bibliog il diags plan Ill U Eng Exp Sta Bul 88:1-130 '16
 East Broad Top coal transfer and preparation plant, Mount Union, Penn. H. J. Edsall. il Coal Age 9:524-6 Mr 25 '16; Same cond. Ry R 58:739-41 My 27 '16

- History of a successful jig. F. B. Davenport. diags Coal Age 10:497-8 S 23 '16
 Jigging anthracite coal. E. E. Finn. diags Coal Age 9:22-5 Ap 3 '16
 Preparation of bituminous coal. A. Allen. il Coal Age 10:9-14 Ji 1 '16
 Standard of preparation of anthracite coal. Coal Age 9:1055 Je 17 '16
 Tests on various electric motor-driven equipment used in the preparation of anthracite coal. H. M. Warren, A. S. Biesecker and E. J. Powell. Am Inst Min E Bul 110:181-93 F '16; Discussion. 113:901-2 My '16
 Underwood—a modern colliery. C. M. Young. Coal Age 9:10 Ja 1 '16

See also Coal screening; Coal washing

Bibliography

- Dry preparation of bituminous coal at Illinois mines. E. A. Holbrook. Ill U Eng Exp Sta Bul 88:125-30 '16

Coal prices

- Anthracite companies abandon the circular prices. Coal Age 9:843 My 13 '16
 Anthracite price investigation. Coal Age 10:390 S 2 '16
 Anthracite prices increased. Coal Age 10:768 N 4 '16
 Cost of coal at Boston. Coal Age 9:687 Ap 15 '16
 French coal industry under war conditions. Coal Age 9:64 Ja 8 '16
 Increasing price of coal. J. Kenvin. Coal Age 9:425 Mr 4 '16
 New anthracite prices. Coal Age 9:880-1 My 20 '16
 Reason for the new anthracite price schedule. Coal Age 9:964-5 Je 3 '16

Coal purchasing

- Analyzing machine performance and coal characteristics before purchasing. Elec W 67:545-6 Mr 4 '16
 Coal purchasing on specifications and delivery weights effects good saving for small Illinois stations. Elec W 67:601 Mr 11 '16
 Coal testing as a basis for purchasing coal. il Textile World 51:3557 Ag 12 '16
 Government vs. New York city specifications. Coal Age 9:918-19 My 27 '16
 Heat-unit system buying coal. Coal Age 10:816-17 N 11 '16
 Increase in New York city's fuel bill. Coal Age 10:36 Jl 1 '16
 Methods of sampling delivered coal, and types of specifications for the purchase of coal for the government. G: S. Pope. il U S Bur Mines Bul 116:1-58 '16; Excerpts. Am Gas Light J 105:163-7 S 11 '16
 Methods used to provide coal for a large group of steam stations. Elec W 67:1168 My 20 '16
 Purchase of coal in the New York market. Coal Age 9:349 F 19 '16
 Purchase of coal in the New York market. R. Trauttschold. Coal Age 9:346-7 F 19 '16
 Purchasing coal by test. W. D. Stuckenberg. Power 43:896-7 Je 20 '16
 Selecting coal for the plant. G: C. Cook. Power 44:262-3 Ag 22 '16

See also Coal—Cost; Coal prices

Coal sampling

- Collecting and preparing samples of coal deliveries. il Power 43:364-5 Je 20 '16
 Convenient methods and devices for sampling coal. diag Elec W 68:426 Ag 26 '16
 Methods of sampling delivered coal, and types of specifications for the purchase of coal for the government. G: S. Pope. il U S Bur Mines Bul 116:1-58 '16; Excerpts. Am Gas Light J 105:163-7 S 11 '16; Excerpts. Factory 17:750, 752 D '16
 Triplicate sampling of coal. W. D. Stuckenberg. il Power 44:612-14 O 31 '16

Coal screening

- Design for shaker screens. C. C. Wright. il diags plan Coal Age 9:284-8 F 12 '16
 New step perforated screen. diags Coal Age 9:589-90 Ap 1 '16
 Operation of the shaker screen. J: A. Garcia. Coal Age 9:669-70 Ap 15 '16
 Shaker screen drive. W: H. McGann. diags Coal Age 9:368-72 F 26 '16
 Shaker-screen problems. Coal Age 9:609 Ap 1 '16

Coal sheds. See Coal storage

Coal storage

- Concrete coal cylinders built with moving forms. C. H. Higgins. *il Eng N* 75:420-1 Mr 2 '16
- Effect of storage on the analysis of coal. Coal Age 8:941-2 D 4 '15
- Fuel supply of a big power plant; storage of coal at New York. J. F. Springer. *il plan Sci Am S* 81:200-1 Mr 25 '16
- Insuring the coal supply. H. J. Edsall. *il diag Coal Age* 8:749-56 N 6 '15; Same. Power 42: 838-42, 874-8 D 14-21 '15; Same cond. Textile World 51:1403+ Mr 11 '16; Abstract. Iron Tr R 58:708 Mr 30 '16
- Michigan test shows that gas coals can be exposed to weather for 5-year period without any deteriorating effect. A. H. White. *Am Gas Light J* 105:198 S 25 '16
- Preparing to meet a coal shortage; problems of storing coal. C. E. Leshner. *il Sci Am* 114: 222-3+ F 26 '16
- Quarry storage of coal. Coal Age 9:1045 Je 17 '16
- Reinforced concrete combined with timber for coal pockets and trestle. C. F. Dingman. *il diag Eng Rec* 73:43-4 Ja 8 '16
- Stocking anthracite coal. E. B. Wilson. *il Coal Age* 9:929 My 27 '16
- Storage of coal. J. B. C. Kershaw. Coal Age 8:962-4; 9:168-9, 240-4 D 11 '15, Ja 22, F 5 '16
- Successful under-water coal storage. J. D. Wardle. *il Elec Ry J* 47:1191 Je 24 '16
- Tile used for coal bunkers instead of steel or concrete. J. N. Hatch. *Eng Rec* 73:426 Mr 25 '16
- Two five thousand ton coal storage equipments. H. J. Edsall. *il Power* 43:613-14 My 2 '16
- What about stored coal? Factory 17:296+ S '16
- Coal stripping.** See Coal mines and mining
- Coal tar**
- Coal tar helps maintenance of metal flumes. F. D. Pyle. *Eng Rec* 74:622 N 18 '16
- Coal tar—its development and uses. A. C. Wilke. *Am Gas Light J* 104:246 Ap 17 '16
- See also Naphthalene; Tar

Coal-tar colors

- Coal-tar colors, and the Hall process of manufacturing gasoline from gas oil. C. F. Chandler. *J Ind & Eng Chem* 8:72-5 Ja '16
- Coal-tar dye industry, past, present and future; with review of legislation. B. C. Hesse. *Met & Chem Eng* 15:120-4 Ag 1 '16
- Manufacture of aniline dyes in America. I. F. Stone. Textile World 51:5021 N 25 '16
- Research, scientific and industrial in the coal-tar dye industry. B. C. Hesse. *J Ind & Eng Chem* 8:845-8 S '16
- See also Dye industry; Dyes and dyeing

Coal-tar products

- By-products of coke making. W. H. Childs. *diag Iron Tr R* 58:1215-18, 1259-63, 1322-6 Je 1-15 '16; Same. Gas Age 38:228-33 S 1 '16; Same cond. *Met & Chem Eng* 15:38-41 Jl 1 '16; Same cond. Iron Age 97:1371-2; Discussion. 1372-3 Je 1 '16; Abstract, with *diag. Coal Age* 10:344-5 Ag 26 '16
- Coal-gas residuals and their application. F. H. Wagner. *J Fr Inst* 181:505-24 Ap '16; Same. *Met & Chem Eng* 14:493-500 My 1 '16
- Coal tar and its products. *Eng & Min J* 101:7-8 Ja 1 '16; Same cond. *Gas Age* 38:21-2 Jl 1 '16; Abstract. *Eng M* 50:788 F '16
- Development in the United States of the manufacture of products derived from coal. H. W. Jordan. *J Ind & Eng Chem* 8:172-4 F '16; Same. *Met & Chem Eng* 14:144-6 F 1 '16; Same cond. *Am Gas Light J* 104:164-5 Mr 13 '16; Excerpts. Iron Tr R 58:186+ Ja 20 '16
- Drugs from coal tar. *Am Gas Light J* 104:119 F 21 '16
- Fuel oils from coal. H. Moore. *Engineer* 121: 256 Mr 24 '16
- Future of gas seems to lie less in its use as an illuminant than as a fuel. L. H. Baekeland. *Am Gas Light J* 105:74-5 Jl 31 '16
- How may by-products be best utilized? W. H. Elvaelt. Iron Tr R 58:1371-2 Je 22 '16
- Manufacture of products derived from coal. Textile World 51:1139+ F 19 '16

- Processes of the organic chemical industry used in the manufacture of intermediate products. A. H. Ney and D. J. Van Marle. *il Met & Chem Eng* 15:289-92 S 15 '16
- Proposed government nitrate plant. Iron Age 97:1156-7 My 11 '16
- Relation of chemistry to the gas industry. L. H. Baekeland. *Gas Age* 38:134-6 Ag 1 '16
- Thermal reactions in the vapor phase of various coal tar oils and distillates. W. F. Rittman and G. Egloff. *Met & Chem Eng* 14:15-18 Ja 1 '16

See also Benzol; Carboic acid; Coal-tar colors; Coumaron resin; Gas; Pitch; Toluene

Coal testing

- Cheapest fuel and most economical load. R. H. Karl. Power 42:792-4 D 7 '15
- Michigan test shows that gas coals can be exposed to weather for 5-year period without any deteriorating effect. A. H. White. *Am Gas Light J* 105:198 S 25 '16
- New method of examining coal in gas works. H. Hiller. *diag Gas Age* 38:145-6 Ag 1 '16
- Simple test of coal. Metal Work 35:408 Mr 24 '16
- Testing Alaska's coal. Coal Age 9:117 Ja 15 '16
- Testing locomotive coals. *Engineer* 121:159-60 F 18 '16

See also Coal—Analysis; Coal sampling

Coal tipples. See Mine tipples

Coal trade

- Anthracite coal production decreases slightly in 1915. *Am Gas Light J* 104:98 F 14 '16
- Anthracite in New England. Coal Age 9:71 Ja 8 '16
- Business aspects of the coal industry in 1915. A. T. Shurick. Coal Age 9:61-4 Ja 8 '16
- Canada's coal production. Coal Age 9:487 Mr 18 '16
- Cincinnati coal market. Coal Age 9:77-8 Ja 8 '16
- Coal and coke production in the United States during 1915. Coal Age 9:60 Ja 8 '16
- Coal at Buffalo. Coal Age 9:76-7 Ja 8 '16
- Coal receipts by water at the port of Boston. Coal Age 9:78 Ja 8 '16
- Coal statistics for Milwaukee. Coal Age 9: 1003 Je 10 '16
- Coal trade at Baltimore. Coal Age 9:76 Ja 8 '16
- Coal trade at Cleveland. Coal Age 9:74 Ja 8 '16
- Coal trade in 1915. *Engineer* 121:40 Ja 14 '16
- Coal traffic of the Sault Ste. Marie canals in 1915. Coal Age 9:636-7 Ap 8 '16
- Difficulties of organizing sales combines. J. F. K. Brown. Coal Age 10:712-13 O 28 '16
- Foreign coal fields. A. T. Shurick. Coal Age 9:749-52 Ap 29 '16
- French coal conditions. Coal Age 9:497 Mr 18 '16
- Improving the coal industry. Coal Age 10:505-7, 608, 686-7, 728-9, 774 S 23, O 7, 21-N 4 '16
- Market and shipping conditions on Atlantic coast in 1915. G. G. Wolkins. Coal Age 9:67-70 Ja 8 '16
- Mine weights govern. Coal Age 10:689, 817 O 21, N 11 '16
- New York market in 1915. Coal Age 9:65-6 Ja 8 '16
- Ocean shipping conditions. Coal Age 9:75 Ja 8 '16
- Permanency of our export trade. Coal Age 10:510 S 23 '16
- Philadelphia anthracite market during 1915. Coal Age 9:79-81 Ja 8 '16
- Pittsburgh district in 1915. B. E. V. Luty. Coal Age 9:82 Ja 8 '16
- Preparing to meet a coal shortage; problems of storing coal. C. E. Leshner. *il Sci Am* 114: 222-3+ F 26 '16
- Progress in the export trade. J. S. Burrows. Coal Age 9:72-3 Ja 8 '16
- Prospects for English, Australian, and United States coal in South America. *Engineer* 120: 463 N 12 '15
- Relation of the mine official to the consumer. R. Z. Virgin. Coal Age 8:1065-6 D 25 '15
- Rocky mountain coals in the Pacific coast trade. Coal Age 10:268 Ag 12 '16
- Scott Nearing's anthracite. Coal Age 9:207-9 Ja 29 '16
- Situation at Hampton Roads during 1915. Coal Age 9:73-4 Ja 8 '16

Coal trade—Continued

Trade terms used in the coal markets of Great Britain. Engineer 121:supl-2 Je 23 '16
See also Coal prices

Coal washing

Cost of installing a second-hand washer. il Coal Age 10:8 Jl 1 '16
 Difficulties in coal washing. Coal Age 9:647, 766 Ap 8, 29 '16
 Flat top coal-washing plant, J. G. Hanlin, il plan Coal Age 10:841-3 N 18 '16
 Southern Indiana washery, Oakland City. E. P. Stewart, il Coal Age 8:378-9 N 27 '15

Coal weighing

Coal weighing machinery for receiving and feeding in power plants. il Munic J 40:120-1 Ja 27 '16
 Means of weighing coal. il Coal Age 9:569-70 Ap 1 '16
 Weighing coal for locomotive use. A. G. Zeibel, Ry R 59:148-9 Jl 29 '16

Coaling stations

Fuel stations; International railway fuel association committee report. diags Ry Age 60:1128-9 My 26 '16; Same. Ry Mech Eng 90:283-5 Je '16
 Large reinforced concrete coaling plant, Proctor, Minn. il diags Ry Age 61:542-4 S 29 '16; Excerpts. Am Soc M E J 38:933 N '16
 Measuring coal for locomotives. Engineer 122:171 Ag 25 '16
 Measuring locomotive coal. il Eng N 75:1083 Je 8 '16; Same. Coal Age 9:1089 Je 24 '16
 Mechanical coal stage at Hull. il plan (supp) Engineer 122:326, 331 O 13 '16
 New type of concrete coaling station. il diag Ry Age 61:333-4 Ag 25 '16
 Panama canal coaling station at Christobal. Sci Am 115:355 O 14 '16
 Power-driven coaling plant at Camden Town, London & Northwestern Ry. il Ry R 59:615-16 N 4 '16
 Small coaling stations; committee report. Ry Age 61:750-1 O 27 '16
 Waterproof coal pits and fireproof ash pits. diags Eng N 76:635 O 5 '16

Coaling vessels

Coastwise collier Jonancy. il diags plans Int Marine Eng 21:9-11 Ja '16
 Panama colliers Ulysses and Achilles. il diags plans Int Marine Eng 21:283-8 Je '16
 United States army collier built in China. il diags Int Marine Eng 21:184-5 Ap '16

Coast and geodetic survey. See United States—Coast and geodetic survey**Coast defense**

See also United States—Defenses

Coast protection. See Shore protection**Coasting. See Electric railroads—Coasting****Coating with metal. See Metal coating****Cobalt**

Cobalt in electrical engineering. Elec W 66:1325 D 11 '15
 Determination of cobalt and nickel in cobalt metal. C. A. Knittel. Metal Ind n s 14:77-8 F '16
 Electro-deposition of cobalt. Metal Ind n s 14:19-20 Ja '16
 Electro-deposition of cobalt. E. P. Later. Foundry 44:111-13, 141-3 Mr-Ap '16
 Electrolytic extraction of cobalt oxides; patent by K. S. Guiterman. Met & Chem Eng 15:601 N 15 '16
 Electro-plating with cobalt. Sci Am S 82:7 Jl 1 '16
 Magnetic properties of cobalt and iron-cobalt alloys; abstract. H. T. Kalmus and K. B. Blake. Elec W 68:966 N 11 '16
 Occurrence of mercury in cobalt ores. G. H. Clevenger. Econ Geol 10:770-3 D '15
 Volumetric method for the determination of cobalt. W. D. Engle and R. G. Gustavson. J Ind & Eng Chem 8:901-2 O '16

Cobaltcyanide

Rare earth cobaltcyanide. C. James and P. S. Willard. Am Chem Soc J 38:1497-1500 Ag '16

Cockroaches

Destruction of cockroaches. Sci Am S 82:297 N 4 '16

Coconut. See Coir**Coconut oil**

Cocoonut products and other substitutes for butter. Sci Am S 82:265 O 21 '16

Coenties Reef

Difficult piece in subaqueous rock excavation; Coenties Reef and the Whitehall-Montague street tunnels. il Sci Am 115:235+ S 9 '16

Cofferdams

Charts tell weight of sheeting for round or box cofferdams. N. G. Near. Eng Rec 74:451-2 O 7 '16
 Cinders make steel sheeting tight in swift current. il Eng N 76:558-9 S 21 '16
 Constructing pile foundation in hard gravel. S. O. Steere, il diags Eng N 76:338-9 Ag 24 '16
 Emergency canvas coffer-dam. diags Eng N 76:848-9 N 2 '16
 Improving navigation on the upper Mississippi near Le Claire, Iowa. il map Eng Rec 72:785-6 D 25 '15
 Outside template used repeatedly in building steel cofferdams. F. P. Kemon. Eng Rec 74:391 S 23 '16
 Plant and method of dry excavation, Livingstone channel, Detroit river. C. Y. Dixon. map Eng & Contr 46:425-6 N 15 '16
 Pump boat washes cofferdam fill to place from barges. G. W. McAlpin. il Eng Rec 74:391 S 23 '16
 Steel cofferdam of pocket type successful for lock on Cape Fear river. il diag Eng Rec 74:325-6 S 9 '16
 Steel sheetpile coffer-dam for lock on Cape Fear river. Eng N 76:549 S 21 '16
 Steel sheetpile coffer-dams for Troy lock and dam. D. A. Watt, il diags plans Eng N 76:533-40 S 21 '16
 Timber and gravel coffer-dams on the Troy dam. D. A. Watt, il diag Eng N 76:492-5 S 11 '16
 Two Ohio river dams built in two seasons. il plans Eng Rec 73:360-3 Mr 11 '16
 Wood coffer against back of dam used in replacing masonry. il Eng Rec 73:333 Mr 4 '16

See also Bridges—Foundations and piers; Foundations; Piles and pile driving

Coils

Construction of high-tension coil. C. E. Manjerre. Automobile 33:1148-9 D 23 '15
 Leeson-Universal electrical coil-winding machine. il Elec R & W Elec'n 67:1127-8 D 18 '15
 Universal coil winding machine. G. R. W. Roberts. diags Elec Ry J 47:866-7 My 6 '16

Coils, induction. See Induction coils**Coils, Reactance. See Reactors****Coin collecting machines**

Machine collection of tickets and fares by Southern Pacific. W. S. Wollner. Ry Age 61:189-90 Ag 4 '16

Coir

Coir and its preparation. C. F. Fraker. Sci Am S 82:235 O 7 '16

Coke

Calculations with reference to the use of carbon in modern American blast furnaces. H. P. Howland. Am Inst Min E Bul 111:627-50 Mr '16; Same (Is Gruner's ideal now tenable?). Iron Tr R 58:593-600 Mr 16 '16; Abstract (Coke in the blast furnace). Iron Age 97:660 Mr 16 '16; Discussion. Am Inst Min E Bul 115:1245-51; 118:1861-2 Jl, O '16
 Capacity of coke bins; chart. N. G. Near. Foundry 44:418a O '16
 Charts showing prices of foundry coke, 1900-1915. Iron Tr R 58:56a Ja 6 '16
 Coke as a reducing agent in the electric smelting furnace. R. C. Gosrow. Met & Chem Eng 14:691-4 Je 15 '16
 Coke production in 1914 over ten times total amount produced in 1880. Am Gas Light J 105:86 Ag 7 '16
 Coke production increases. Coal Age 9:1056 Je 17 '16
 Coke sizing equipment adapted to small works. E. C. Campbell. il Gas Age 38:342-5 O 2 '16
 Connellsville and byproduct coke industries in 1915. B. E. V. Luty. Coal Age 9:83 Ja 8 '16
 Connellsville coke prices for fifteen years. Iron Age 97:17 Ja 6 '16

Coke—Continued

Foundry by-product coke. G: A. T. Long. Iron Age 98:771 O 5 '16
1915 coke output. Iron Tr R 59:511 S 14 '16
See also Coal; Coke manufacture; Coke oven gas; Coke ovens

Analysis

Coal and coke efficiency in blast furnace operation. B. F. Burman. Met & Chem Eng 14: 137-40 F 1 '16

Coke breeze

Burning coke breeze. il diag Power 44:2-4 JI 4 '16

Coke handling

Machinery for Mitchell type of rectangular coke oven. H. V. Schiefer. il diags Coal Age 10:796-800 N 11 '16

Coke manufacture

Conservation in the manufacture of coke. Sci Am 115:339 O 7 '16

Effect of aeration and watering out on the sulphur content of coke. J. R. Campbell. Am Inst Min E Bul 109:177-80 Ja '16; Same (Sulphur elimination in coking processes). Iron Age 97:374-5 F 10 '16; Same cond. Am Gas Light J 104: 124-5 F 21 '16

Electricity in by-product coke manufacture. il Elec R & W Elec'n 68:583-5 Ap 1 '16

General arrangement of new by-product coke oven plant of the Gulf States steel co., Alabama City, Ala. H. C. Estep. Iron Tr R 58:1094 My 18 '16

Importance of sizing equipment as applied to the sale of coke in small towns. E. C. Campbell. Am Gas Light J 105:235-6 O 9 '16

Making by-product coke for the market. il plans Iron Tr R 58:129-31 Ja 13 '16

Modern plant for making coke. il Iron Tr R 59:515-16 S 14 '16

By-products

Apparatus and operations in by-product recovery. il Gas Age 38:513-18 N 15 '16

Byproduct coking installation in Great Britain. F: C. Coleman. il diags plans Coal Age 9: 201-6 Ja 29 '16

By-products from American coke plants in 1915 valued at \$30,000,000. Am Gas Light J 105:102 Ag 14 '16; Same. Foundry 44:363 S '16

By-products of coke making. W: H. Childs. Iron Tr R 58:1215-18, 1259-63, 1322-6 Je 1-15 '16; Same. Gas Age 38:171-6, 227-33 Ag 15-S 1 '16; Same cond. Met & Chem Eng 15:38-41 JI 1 '16; Same cond. Iron Age 97:1371-2; Discussion. 1372-3 Je 1 '16; Summary. Coal Age 10:344-5 Ag 26 '16

Coal and coke by-products as a source of fixed nitrogen. H. C. Porter. map Met & Chem Eng 15:470-5 O 15 '16; Same (By-products insure preparedness). Iron Tr R 59:725-9 O 12 '16

Coke-oven ammonia for munitions. J. W. Turrentine. J Ind & Eng Chem 8:923-6 O '16

Developing of the American by-product industry. Gas Age 38:68-9 JI 15 '16

How may by-products be best utilized? W. H. Blauvelt. Iron Tr R 58:1371-2 Je 22 '16

Large benzol production. Gas Age 38:185 Ag 15 '16

Large increase in by-products from coke ovens. Met & Chem Eng 15:184 Ag 15 '16

Modern by-product coke practice. T. C. Clarke. Iron Tr R 58:947-50, 979-81 Ap 27-My 4 '16; Same cond. Iron Age 97:1080-1, 1141-3 My 4-11 '16; Same cond. Met & Chem Eng 14:502-4, 601-3 My 1-15 '16; Same cond. Am Gas Light J 104:378-80 Je 12 '16; Abstract. Munic Eng 51:23 JI '16; Abstract. Coal Age 10:342-3 Ag 26 '16

Processes of the organic chemical industry used in the manufacture of intermediate products. A. H. Ney and D. J. Van Marle. il Met & Chem Eng 15:289-92 S 15 '16

Russian byproducts of coking. Coal Age 10: 424-5 S 9 '16

Utilization of by-products from the manufacture of coke. C. G. Atwater. Eng Soc W Pa 32:345-62 My '16; Same. Gas Age 38:275-80 S 15 '16; Discussion. Eng Soc W Pa 32: 362-80 My '16; Same abr. Gas Age 38:337-40 O 2 '16

See also Coke-oven gas

Statistics

By product coke plants in the United States, September, 1916. H. C. Porter. Met & Chem Eng 15:473 O 15 '16

List of by-product coke ovens in the United States, built or building. Iron Tr R 58:949 Ap 27 '16; Same. Am Gas Light J 104:379 Je 12 '16

Coke-oven gas

By-products of coke making. W: H. Childs. Iron Tr R 58:1259-60 Je 8 '16; Same. Gas Age 38:175-6 Ag 15 '16; Excerpt. Am Gas Light J 105:19 JI 10 '16

Coal-gas residuals and their application. F: H. Wagner. J Fr Inst 181:505-24 Ap '16; Same. Met & Chem Eng 14:493-500 My 1 '16

Coke-oven gas as fuel. A. W. Morgan. il diags Power 44:310-11 Ag 29 '16

Determination of benzol in coke-oven gas by Burrell's vapor apparatus. L: C. Whiton. J Ind & Eng Chem 8:733-4 Ag '16

Direct sulphating. Coal Age 9:120 Ja 15 '16

Economical production of power from coke-oven gas. G. Dearn. Inst E E J 54:646-50 Je 1 '16; Abstract. Am Soc M E J 38:760-1 S '16; Abstract. Am Gas Light J 105:190 S 18 '16; Abstract. Iron Age 98:581 S 14 '16; Discussion. Inst E E J 54:650-5 Je 1 '16

Heat value of light oil from coke-oven gas. J. W. Shaeffer. Gas Age 38:486-7 N 1 '16

See also Blast furnace gas; Coke manufacture—By-products

Coke ovens

Coke ovens heated from above. O. Simmersbach. diag Iron Age 96:1354-5 D 9 '15; Same. Am Gas Light J 104:7 Ja 3 '16

Gas and temperature conditions in coke ovens. Am Gas Light J 104:125 F 21 '16

Improved design in coke ovens. il diag Iron Age 97:1256-8 My 25 '16

Machinery for Mitchell type of rectangular coke oven. H. V. Schiefer. il diags Coal Age 10:796-800 N 11 '16

Manufacture and tests of silica brick for the byproduct coke oven. K. Seaver. il Am Inst Min E Bul 105:1913-27 S '15; Same. Met & Chem Eng 13:861-6 N 15 '15; Excerpts. Am Gas Light J 104:12 13 Ja 3 '16; Discussion. Am Inst Min E Bul 113:937-41 My '16

Recuperator wall for coke ovens; patent by A. Roberts. Met & Chem Eng 15:539 N 1 '16

Vertical cross section through Solvay coke oven. Iron Tr R 58:131 Ja 13 '16

See also Coke-oven gas

Accidents

Coke-oven accidents in the United States, during the calendar year 1915. A. H. Fay. U S Bur Mines Tech Pa 151:1-17 '16; Excerpt. Iron Tr R 59:786 O 19 '16

Charging

Electrically driven charging cars for coke-ovens; abstract. K. Dobbelsstein. il diags Am Soc M E J 38:349-50 Ap '16

Safety devices and measures

Safety in coke-oven operations. K. M. Burr. Coal Age 10:709-10 O 28 '16; Same cond. Iron Age 98:1110-11 N 16 '16

Cold light

Unsolved problems of photochemistry. H. A. Curtis. Met & Chem Eng 14:186 F 15 '16; Same. Sci Am S 81:181 Mr 18 '16

Cold storage

Cost of cold storage buildings. P. R. Newman. Concrete 9:163 N '16

See also Refrigeration and refrigerating machinery; Refrigerator cars

Cole, Timothy, 1852-

Master wood-engraver—Timothy Cole. N: J. Quirk. por Inland Ptr 56:780-1 Mr '16

Collars

Shirt and collar industries; report on the cost of production in the United States. U S Bur For & Dom Com misc ser 36:1-178 '16; Excerpt (History of the collar). Sci Am S 82:61 JI 22 '16

Collecting of accounts

Collecting slow accounts by mail. W. B. Parker. Dom Eng 75:39-40 Ap 8 '16

Collecting of accounts —Continued

- Collection records simplified. W. B. Parker. Dom Eng 76:232 Ag 26 '16
- Customers' payments facilitated through use of monthly bills as sight drafts. Elec W 68: 913 N 4 '16
- Diplomacy in collecting water bills at Terre Haute, Ind. D. R. Gwinn. Eng & Contr 44: 444-6 D 8 '15
- Energizing the monthly statement. W. B. Parker. Inland Ptr 57:334-6 Je '16; Excerpts. Elec R & W Elec'n 69:122 Jl 15 '16
- Inexpensive way of making your collections. W. B. Parker. Elec R & W Elec'n 68:297-8 F 12 '16
- Making dealer's collections in the summer. R. H. Edwards. Elec R & W Elec'n 69:299 Ag 12 '16
- Method of simplifying collection records for the merchandiser. W. B. Parker. Elec R & W Elec'n 68:517 Mr 18 '16
- Pointers on collection diplomacy. W. B. Parker. Dom Eng 76:155 Jl 29 '16
- Revising bankrupt and outlawed accounts. W. B. Parker. Elec R & W Elec'n 68:1164 Je 24 '16; Same. Inland Ptr 57:475-7 Jl '16
- To lift the burden of slow pay. E. E. White-horne. Elec W 67:711 Mr 25 '16
- Turning book-accounts into cash. J. S. Vogel. Elec R & W Elec'n 69:297 Ag 12 '16
- Use of diplomacy in making collections of poor accounts. W. B. Parker. Elec R & W Elec'n 68:423 Mr 4 '16
- When employees or agents hold back money. E. J. Buckley. Metal Work 85:837 Je 16 '16
- See also* Kansas City railroad collection bureau

College architecture

- Martha Cook building, University of Michigan. Arch & Bldg 48:8-9, pl 1 Ja '16
- New group of agriculture buildings at Cornell university. il plans Brickb 25:81-8 Ap '16
- Three new college buildings; Skinner recitation building at Mt. Holyoke college; Central dormitory at Wellesley college; Martha Cook building at the University of Michigan. il Brickb 25:39-42, pl 1-16 F '16
- X. M. C. A. college in Chicago. P; B. Wight. il plans Arch Rec 39:395-418 My '16

College athletics

- Heart of the athlete. Sci Am S 81:52 Ja 22 '16

College buildings

- Dedication of the new chemistry building, University of Illinois. il diag plans J Ind & Eng Chem 8:523-47 Je '16
- University to order; educational group of the new Massachusetts institute of technology. il Sci Am 114:583+ Je 3 '16

College directories

- Alphabetical and geographical lists of former students of Sibley college. Sibley J 30:319-66 Jl '16

College of the city of New York

- Architectural possibilities of reinforced concrete shown in city college stadium. il diags Eng Rec 73:10-12 Ja 1 '16

Colleges and universities

- Chemical industry and the university. C. E. Lucke. Sch Mines Q 36:306-12 Jl '15; Same. J Ind & Eng Chem 7:1012-14 D '15
- Jealousy of state-supported schools criticised. A. L. Lowell. Eng Rec 74:13-14 Jl 1 '16
- Medieval universities. C. S. Cooper. Sci Am S 82:22-3 Jl 8 '16
- Universities and the industries; symposium. J Ind & Eng Chem 8:59-66 Ja '16; Discussion. 8:441-51 My '16
- University and industry. N: M. Butler. J Ind & Eng Chem 7:1069-71 D '15
- University and industry; meeting of New York section of American chemical society. Met & Chem Eng 14:413-15 Ap 15 '16
- What is a college for? Eng & Contr 46:252-4, 333, 378-80 S 20, O 18, N 1 '16

See also Agricultural colleges; College architecture; College buildings; Engineering colleges; Industrial service movement

Accounting

- Accounting procedure for state universities. W: B. Castenholz. J Account 21:81-92, 167-75 F-Mr '16

Colliers. See Coaling vessels**Collisions (railroad). See** Railroads—Accidents**Colloids**

- Chemical composition versus electrical conductivity. C. G. Fink. Met & Chem Eng 15: 464-5 O 15 '16
- Colloidal arsenates and phosphates of iron. H. N. Holmes and R. E. Kindfus. Am Chem Soc J 38:1970-82 O '16
- Colloidal solid solutions. D. McIntosh and R. Edson. Am Chem Soc J 38:613-15 Mr '16
- Colloidal theories, applied to colored water, reduce cost of chemicals. G: F. Catlett. il Eng Rec 73:741-2 Je 3 '16
- Colloidal theories applied to water decolorization. M. F. Stein. Eng Rec 73:842 Je 24 '16
- Colloids and colloidal slimes; Sedimentation and flocculation. E. E. Free. bibliog il diags Eng & Min J 101:249-54, 429-32, 509-13 F 5, Mr 4, 18 '16; Rate of slimes settling. Eng & Min J 101:681-6 Ap 15 '16
- Control of ore slimes. O. C. Ralston. Eng & Min J 101:763-9, 890-4, 990-4 Ap 29, My 20, Je 3 '16
- Effect of freezing on certain inorganic hydrogels. H. W. Foote and B. Saxton. Am Chem Soc J 38:588-609 Mr '16
- Electrical synthesis of colloids. H. T. Beans and H. E. Eastlack. diags Am Chem Soc J 37:2667-83 D '15
- Increasing stability of bitumens by introduction of colloids. Met & Chem Eng 15:606 N 15 '16
- Oxidation and reduction without the addition of acid; reaction between stannous chloride and potassium dichromate; a contribution to colloid-chemistry. N. Neidle and J. C. Witt. Am Chem Soc J 38:47-52 Ja '16
- Properties of slime cakes. E. E. Free. Eng & Min J 101:1068-70, 1105-8 Je 17-24 '16
- Relation of clay to ore-dressing and cyanidation. A. W. Allen. Met & Chem Eng 14:245-6 Mr 1 '16
- Rôle of colloidal migration in ore deposits. J: D. Clark and P. L. Menaul. Econ Geol 11:37-41 Ja '16
- Selective adsorption and differential diffusion. J. Alexander. Met & Chem Eng 15:540 N 1 '16
- Studies in dialysis; the dialysis of a colloidal solution of hydrous chromic oxide in chromic chloride. M. Neidle and J. Barab. diags Am Chem Soc J 38:1961-70 O '16
- Technical applications of capillary and electrocapillary chemistry. W. C. M. Lewis. Met & Chem Eng 15:253-9 S 1 '16
- Theory of colloids. J: A. Wilson. Am Chem Soc J 38:1982-5 O '16
- See also* Catalysis

Bibliography

- Colloids and surface tension. J. Cunningham. Mo U Bul 8:44-51 Ja '16; Same. Am Inst Min E Bul 115:1131-6 Jl '16

Colombia**Industries and resources**

- Development of Colombia. F. Escobar. Am Ind 16:13 Ja '16
- Emerald deposits of Muzo. J. E. Pogue. bibliog il diags maps Am Inst Min E Bul 113:799-822 My '16; Discussion. 118:1869-70 O '16

Colonial architecture. See Architecture, Colonial**Color**

- Color standards and calorimetric assays. H. V. Army and C. H. Ring. J Ind & Eng Chem 8:309-17 Ap '16
- Comparative color photometer; a new system for the standardization and charting of colors and for scientific color synthesis. A. Howland. diags Sci Am S 82:220-1 S 30 '16
- Visibility of distant objects in warfare. Sci Am S 81:371 Je 10 '16
- See also* Coal-tar colors; Color matching; Color measurement; Color sense; Drawing—Color fixation; Dyes and dyeing; Indigo; Light; Light, Colored; Paint

Color, Physiological effect of

- Relative stimulating efficiency of spectral colors for the lower organisms. S. O. Mast. Sci Am S 81:144 F 26 '16

Color fixation. See Drawing—Color fixation

Color matching

Gaseous conductor lamps for color matching. D. M. Moore, il diags Illum Eng Soc 11: 192-219 no 2 '16; Abstracts, Elec W 66:1169 N 20 '15; Elec R & W Elec'n 67:949 N 20 '15; Met & Chem Eng 13:885 D 1 '15; Eng M 51:440-1 Je '16

Two recent developments in electric illuminating devices, il Sci Am 114:422 Ap 22 '16

Color measurement

Numerical expression for color as given by the Ives tint photometer. O. Kress and G. C. McNaughton, il J Ind & Eng Chem 8:711-14 Ag '16

Rapid method for comparing the decolorizing efficiency of charcoals. L. Wickenden and J. W. Hassler, diag J Ind & Eng Chem 8: 518-19 Je '16

Transformation of color-mixture equations from one system to another. H. E. Ives, bibliog diags J Fr Inst 180:673-701 D '15

See also Colorimeters; Colorimetric analysis

Color of birds

Coloration of birds. A. A. Allen, il Am For 22:464-7 Ag '16

Color photography

Double-negative camera which reproduces images in natural colors, il Sci Am 114:471+ My 6 '16

Process for producing colored photographic prints, il diag Sci Am 113:524 D 11 '15; Abstract, J Fr Inst 181:232 F '16

Color printing

Printing three colors at one impression. J Fr Inst 180:701-2 D '15

Standardizing plates for colorwork, il Inland Ptr 57:240 My '16

Type-faces and color-printing. J. L. Frazier, Inland Ptr 57:645-6 Ag '16

See also Color photography

Color sense

Color-vision. F. W. Edridge-Green, Sci Am S 82:31-2, 39 J1 8-15 '16

Jennings color test, il Ry Age 61:412 S 8 '16

Modern method of applying the standard worsted test for color sense, Ry R 59:27 J1 1 '16

Probable perception of invisible light by some animal species. J. F. Tristan and G. Michaud, il Sci Am 114:81+ Ja 15 '16

Color vision. See Color sense**Colorado****Antiquities**

Uncovering a prehistoric dwelling in southeastern Colorado, il Sci Am 115:156 Ag 12 '16

Industries and resources

See also Mines and mineral resources—Colorado

Colorado & Southern railway

17th annual report, map Ry Age 61:979-80, 1023-4 D 1 '16

Colorado river

Colorado river conditions this year unprecedented, L. M. Lawson, Eng Rec 74:346 S 16 '16

Solving the Imperial valley irrigation problems, Eng N 75:170-1 Ja 27 '16

Colored light. See Light, Colored**Colorimeters**

New colorimeter, C. F. Sammet, diag J Ind & Eng Chem 8:519-21 Je '16

Possible source of error in colorimeter observations. J. H. Long, Am Chem Soc J 38:716-18 Mr '16

Colorimetric analysis

Color standards and colorimetric assays, H. V. Arny and C. H. Ring, J Ind & Eng Chem 8:309-17 Ap '16

Colorimetric determination of acetylene, E. R. Weaver, Am Chem Soc J 38:352-61 F '16

Colorimetry. See Color measurement**Columbia highway**

Beautiful link in our highway system, il Sci Am 114:633 Je 17 '16

Columbia highway; description and cost figures. H. L. Bowlby, Good Roads n s 11:124-7 Mr 4 '16

Columbia highway in Oregon. H. L. Bowlby, il Am For 22:411-16 J1 '16

Columbia highway tunnel. H. L. Bowlby, il plan Eng N 75:446-8 Mr 9 '16

Columbia river highway, il Sci Am S 82:8 J1 1 '16

Columbia river highway in Oregon, il Good Roads n s 11:3-8 Ja 1 '16

Columbia river interstate bridge

Making the earthwork approach to Columbia river bridge. E. E. Howard, il diag Eng N 75:145-9 Ja 27 '16

Columbus, Ohio**Floods**

Cat and kitten holes in outlet of dam control high and low flood discharges, diags Eng Rec 74:162-3 Ag 5 '16

Engineers recommend both reservoirs and levees to protect Columbus from floods, Eng Rec 73:419 Mr 25 '16

Flood protection at Columbus, Eng N 75:490-1 Mr 16 '16

Ordinances, etc.

Furnace installation ordinance, Metal Work 85:636-8 My 12 '16

Traffic code of Columbus, O. Eng & Contr 46: 380-1 N 1 '16

Sewerage

Columbus changes sewage tanks to Imhoff type, il Eng Rec 72:701-2 D 4 '15

River inspection real test of sewage treatment, C. B. Hoover, Eng Rec 74:115 J1 22 '16

Water supply

Columbus waterworks to make its own lime, C: P. Hoover, il Munic J 39:945-6 D 23 '15

Columbus waterworks will reclaim its spent lime, C: P. Hoover, Eng Rec 73:806 Je 17 '16

Manufacture of sulphate of alumina at the Columbus water softening and purification works, C: P. Hoover, Am Water Works Assn J 2:693-9 D '15; Same, Eng Rec 71:576-7 My 8 '15; Same, Eng & Contr 43:448-9 My 19 '15; Discussion, Am Water Works Assn J 2:699-702 D '15

Column footings

Heavy concrete footings suspended in underpinning columns, il Eng Rec 73:294 F 26 '16

Columns

Comparative designs of office buildings, F. Ruchtj, diags W Soc E J 21:653-62 O '16

Eccentric loading on columns, diag Eng Rec 74:419, 510 S 30, O 21 '16

Eccentric loading on columns discussed, accompanied by formulas and table, R. Fleming, diag Eng Rec 74:296-7 S 2 '16

Theoretical determination of bending moment and deflection in columns, M. Gordon; H. Epstein; D: Kaplan, Eng & Contr 45:226-7 Mr 8 '16

Theoretical determination of the bending moment and deflection in columns subjected to combined bending and compression, D: Kaplan, diags Eng & Contr 45:101-4 F 2 '16

See also Poles; Scrolls (decorative design); Strains and stresses

Testing

Combined fire and load tests of building columns, diag Eng N 74:1144-5 D 9 '15

Eight tests on built-up timber columns, H. D. Dewell, il diags Eng N 75:324-6 F 17 '16

Fire tests of building columns, Iron Tr R 58: 823 Ap 13 '16

Proposed series of fire-resistance tests of columns, Eng Rec 72:800 D 25 '15

Columns, Concrete

Column forms with chain ties, diag Eng N 74: 1280 D 30 '15

Data on the requirements of different building regulations and authorities governing reinforced concrete columns; table, F. P. Furber, Eng & Contr 45:204-6 Mr 1 '16

Hollow columns and roof ducts to ventilate concrete building of Cluett, Penbody & co., Troy, N. Y. il diags Eng Rec 74:658-9 N 25 '16

Hollow reinforced-concrete columns for Ford plant, diags Eng Rec 74:620-1 N 18 '16

Pressure of wet concrete on the sides of column forms, A. B. McDaniel and N. B. Garver, il diags Eng N 75:933-6 My 13 '16

Spiral vs. vertical steel in concrete columns, P. P. Furber, Eng Rec 73:277 F 26 '16

Columns, Steel

- Heavy steel bridge columns. diags Eng N 75: 654 Ap 6 '16
- Jacking up Riverside Drive viaduct; buckling columns give trouble. il diags Eng N 76:869-73 N 9 '16
- Large columns of carbon and alloy steels fail near yield points of material. J. H. Griffith and J. G. Bragg. il diags Eng Rec 74:19-21 J1 1 '16
- New columns and trusses to support added stories in Engineering societies building. diags Eng Rec 74:412-14 S 30 '16
- Progress report of special committee of American society of civil engineers on steel columns and struts. Eng & Contr 45:86-9 Ja 26 '16
- Steel columns of thick material relatively weak. Eng Rec 73:81-2 Ja 15 '16
- Subway columns and girders designed to support future high office building. diags Eng Rec 74:113-14 J1 22 '16
- Tests apparently substantiate the theoretical formula for strength of outstanding flanges. R. J. Roark. il diags Eng Rec 74:592-3 N 11 '16
- Tests of large bridge struts reveal new facts. J. H. Griffith and J. G. Bragg. il Eng N 76: 49-52 J1 13 '16
- Tests of 180 steel columns. Eng N 75:190-1 Ja 27 '16
- Two-story concrete car barn in Vancouver designed with steel columns. il diags plan Eng Rec 74:584-5 N 11 '16

Combustion

- Action of furnace gases. E. A. Uehling. Power 44:63-4 J1 11 '16
- Action of furnace gases. S. H. Viall. Power 43:579-81 Ap 25 '16
- Blue water-gas and deep-fuel combustion. A. G. Glasgow. Am Gas Light J 104:23, 26-7 Ja 10 '16
- Chart determines loss due to incomplete combustion. H. F. Hutzler. Power 43:910 Je 27 '16
- CO₂ available with fuels of varying hydrogen. V. J. Azbe. Power 43:543 Ap 18 '16
- Developing efficiency in central stations. C. M. Rogers. Power 44:8-10 J1 4 '16
- Developing efficiency in central stations. H. D. Fisher. Power 44:251-2 Ag 15 '16
- Draft and its application to the steam boiler. E. A. Uehling. Power 44:711-14 N 21 '16
- Essential principles of smoke prevention. L. P. Breckenridge. Metal Work 84:834-5 D 31 '15
- Excess air in fuel combustion. M. B. Smith. Power 44:680-2 N 14 '16
- Explosion period in gas engine. R. S. King. Power 43:48-9 Ja 11 '16
- Firing soft coal under naval boilers. W: L. De Baufre. Power 44:182-4 Ag 1 '16
- Mixing air and furnace gases. S. H. Viall. diags Power 43:788-90 Je 6 '16
- New patented combustion system. il Heat & Ven 13:52 Mr '16
- Performance of boilers with balanced draft. R. I. Elkin. diags Elec W 68:321-2 Ag 12 '16
- Series of lectures given to firemen at Philadelphia water pumping stations. Eng & Contr 45:294-6 Mr 29 '16
- Value of preheating boiler-furnace air supply. R. I. Elkin. Elec W 67:771 Ap 1 '16
- See also* Firing; Flames; Fuel; Mechanical draft; Smoke prevention

Combustion, Spontaneous. *See* Spontaneous combustion

Combustion, Surface

- Construction of furnaces of the surface combustion type. N. Latta. Am Gas Light J 105: 177-9 S 18 '16
- Heat-treating plant, Eddystone, Pa., using surface combustion. il diags Met & Chem Eng 15:363-4 S 15 '16
- Large surface combustion installation for the Eddystone munitions corporation. il diag Gas Age 38:433-4 O 16 '16
- Recent experiments in surface combustion. L. J. Bradford and C. D. Corwin. diags Power 42:787-8, 855-8 D 7, 21 '15; Same. Sci Am S 81:348-9 My 27 '16

- Remington arms company's gas-fired annealing furnaces for rifle parts handle 20-ton charges. il diags Am Gas Light J 105:209-10 O 2 '16; Same cond. Iron Age 98:636-7 S 21 '16; Excerpts. Am Soc M E J 38:932-3 N '16
- Surface combustion affords efficient means of converting coal-fired brick bake ovens to gas. H: L. Read. il diag Am Gas Light J 105: 353-5 N 27 '16
- Test of a surface combustion furnace. E. Schramm and J. R. Cain. il diags J Ind & Eng Chem 8:361-5 Ap '16
- Three principal difficulties presented in the use of the surface combustion principle for the gas firing of boilers. N. Latta. Am Gas Light J 105:225-9 O 9 '16

Comets

- Invisible comets. W: H. Pickering. Sci Am S 82:291 N 4 '16
- Orbit of Wolf's comet. H: N. Russell. Sci Am 115:16 J1 1 '16

Comfort stations, Public. *See* Public comfort stations

Commerce

- Causes and effects of traffic in goods. D: B. Rushmore and R. H. Rogers. Gen Elec R 19:305-8 Ap '16
- Urgency of commercial preparedness. Metal Work 85:431-2 Mr 31 '16
- See also* Accounting; Advertising; Banks and banking; Bookkeeping; Business; Capital; Contracts; Corporations; Credit; European war—Economic aspects; Export trade; Government regulation of industry; Harbors; Interstate commerce commission; Manufactures; Packing for shipment; Ports; Prices; Profit sharing; Railroads; River traffic; Salesmen and salesmanship; Shipping; Tariff; Trade marks; Transportation; Warehouses; Waterways; Weights and measures; also subdivision commerce under names of countries, e.g. South America—Commerce, United States—Commerce

Commerce commission, Interstate. *See* Interstate commerce commission

Commercial associations

- Commercial organizations of United States. U S Bur For & Dom Com misc ser 28:1-104 '15

Commercial correspondence

- Export trade suggestions. U S Bur For & Dom Com misc ser 35:71-6 '16
- On writing letters. Gas Age 38:67 J1 15 '16

Commercial education. *See* Business education

Commercial engineers, New England association of. *See* New England association of commercial engineers

Commercial law

- Agreement not to enter similar business. E. J. Buckley. Metal Work 84:747 D 10 '15
- Business legislation now before Congress. Am Ind 16:13-19 F '16

See also Accountants, Public—Law; Arbitration, Industrial; Contracts; Debt; Government regulation of industry; Guaranties and sureties; Insurance, Employers' liability; Liens; Mechanics' liens; Patent laws and legislation; Public utilities; Sales

Commercial paper. *See* Negotiable instruments; Warehouse warrants

Commercial travelers

- Central America as an export field; regulations affecting commercial travelers. G. Harris and others. U S Bur For & Dom Com 113: 220-4 '16

See also Salesmen and salesmanship

Commission business

- Aspects of commission business. G. D. Crain, jr. Textile World 51:679+ Ja 15 '16

Commissions, Federal

- Development of government by means of federal commissions. Am Ind 17:24-5 N '16

Commonwealth Edison co., Chicago

- Commonwealth Edison system in pictures. il Elec R & W Elec'n 68:892-6 My 20 '16
- Convenience of the customer; system of the Commonwealth Edison company. il Elec W 68:15-20 J1 1 '16
- Growth of the Chicago property. Elec W 67: 1140-3 My 20 '16

- Commonwealth Edison co., Chicago—Continued**
Harrison street generating station torn down after twenty years of service. *il Elec W* 67:1240-2 *My* 27 '16
- Commonwealth steel company, Granite City, Ill.**
Human engineering; welfare or fellowship work in manufacturing plants. A. T. Morey. *il Ry R* 59:523-6 *O* 14 '16
- Communication**
See also Newspapers; Railroads; Telegraph; Telegraph codes; Telephone; Transportation; Wireless telegraph
- Commutation (electricity)**
Direct-current armature windings. J. A. Randolph. *diags Power* 44:375-7 *S* 12 '16
Effect of brush width on commutation; abstract. C. G. Lewis. *Elec W* 68:581 *S* 16 '16
Operation of interpole direct-current machines. J. Lebovici. *diags Elec W* 67:651-3 *Mr* 18 '16
- Commutators**
Determination of the dimensions of commutators; abstract. T. Carter. *Elec W* 67:1482 *Je* 24 '16
Grinding the commutator. C. J. Fuetter. *Coal Age* 9:446 *Mr* 11 '16
How a commutator was repaired under difficulties. A. Hervey. *il diags Elec W* 67:494-5 *F* 26 '16
Physical limitations on d-c. commutating machinery. B. G. Lamme. *Am Inst E E Pro* 34:1559-1614 *Ag* '15; Discussion. 35:211-16 *F* '16
Ring fire and flashing. G. Fox. *il Power* 43:440-2 *Mr* 28 '16
Simple construction of small commutators. *diags Elec W* 68:512 *S* 9 '16
Troubles with commutators. C. V. Hull. *Power* 44:169 *Ag* 1 '16
Truing exciter commutators. B. J. Bell. *diags Power* 44:316 *Ag* 29 '16
Unusual commutator trouble. G. A. Schneider. *Power* 43:373 *Mr* 14 '16
What the operator should know about slotted commutators. *Elec R & W Elec'n* 67:1147 *D* 25 '15
See also Dynamos; Electric motors
- Compass**
Locating gate boxes by compass. S. P. Sears. *Eng N* 75:1237-8 *Je* 29 '16
See also Magnetism, Terrestrial
- Compensation.** *See* Workmen's compensation
- Competition, International**
American competition after the war. *Engineer* 122:58-9 *Jl* 21 '16
- Competition, Unfair**
Trust laws and unfair competition. *Mach* 23:184+ *O* '16
Unfair competition in simulating a device or symbol employed by another. *Dom Eng* 74:297 *Mr* 4 '16
- Competitions, Architectural.** *See* Architecture—Competitions
- Composing machines.** *See* Typesetting machines
- Compound words**
Compound terms in technical English. F. H. Teall. *Inland Ptr* 57:207-8 *My* '16
Eliminate hyphens except in compound adjectives. F. H. Teall. *Inland Ptr* 58:201-2 *N* '16
Practical thoughts on compound words. F. H. Teall. *Inland Ptr* 56:778-9 *Mr* '16
Writing of compound technical terms. C. W. Park. *Eng & Contr* 44:498-500 *D* 29 '15; Abstract. *Eng M* 50:784 *F* '16
- Compressed air**
Air-balanced hoisting engine. *il plan Power* 44:640-1 *N* 7 '16
Air breakwater put to severe test. *il Sci Am* 114:403 *Ap* 15 '16
Air in compression and expansion. C. K. Bennett. *Power* 43:177 *F* 8 '16
Air in compression and expansion. H. G. Tyler; C. H. Berry. *Power* 43:333-4 *Mr* 7 '16
Brasher air breakwater. *il diags Engineer* 121:414-15 *My* 19 '16
Calming rough water with compressed air. *il diag Eng N* 75:1166-7 *Je* 22 '16
Dryer for compressed air. C. Labbe. *diag Eng & Min J* 100:925 *D* 4 '15
Handling compressed air in shaft sinking. F. D. Buffum. *diags Coal Age* 9:956-8 *Je* 3 '16
Measuring the flow of compressed air. T. G. Estep, Jr. *Iron Age* 98:1049-50 *N* 9 '16
Mechanical principles of the blast furnace. J. E. Johnson, Jr. *diags Met & Chem Eng* 14:38-45 *Ja* 1 '16
Pneumatic concrete mixing and placing. New York subway. A. E. Comstock. *il Eng N* 75:496-7 *Mr* 16 '16
Pneumatic concreting and its development. J. H. Graham. *il diag Eng N* 76:386-7 *Ag* 31 '16
Tunnel lining by compressed air mixing and placing. *il diags Eng & Contr* 45:29-34 *Ja* 12 '16
Wider uses of compressed air. H. F. Porter. *il Factory* 16:141-3, 238-41, 335-8, 447-50 *F-My* '16
See also Air compressors; Air lifts; Pneumatic tools; Pneumatic tubes; Vacuum cleaning
- Compressed air in mining**
Compressed-air equalizing system at Copper Queen. F. M. Heidelberg. *diags plan Eng & Min J* 100:1047-9 *D* 25 '15
Compressed air in construction and repair work. C. C. Phelps. *il Coal Age* 8:1004-6 *D* 18 '15
Where the air goes. H. E. Scott. *Eng & Min J* 101:485-6 *Mr* 11 '16
- Compressed air meters**
Tool-ometer. *diag Ry Mech Eng* 90:428 *Ag* '16
- Compressed gas.** *See* Gas, Compressed
- Compressed hydrogen.** *See* Hydrogen, Compressed
- Compressibility**
Compressibility of certain typical hydrocarbons, alcohols and ketones. T. W. Richards and J. W. Shipley. *diags Am Chem Soc J* 38:989-99 *My* '16
Compressibility of natural gas at high pressures. G. A. Burrell and I. W. Robertson. *diag U S Bur Mines Tech Pa* 131:1-10 '16
- Compressors.** *See* Air compressors; Ammonia compressors; Gas compressors
- Computing machines.** *See* Calculating machines
- Comstock lode**
Another shaft on the Comstock may be unwatered. *Eng & Min J* 102:433 *S* 2 '16
- Concentrating tables**
Empire concentrating table. *il Met & Chem Eng* 15:659-60 *D* 1 '16
Empire long-stroke table. J. Gross. *il Eng & Min J* 102:428 *S* 2 '16
- Concentration of ore.** *See* Ore treatment
- Concentrators**
Eberenz and Brown concentrator. *diag Eng & Min J* 102:549 *S* 23 '16
Nashwauk iron-washing plants; with diagram of Wetherbee concentrator. L. A. Rossman. *il Eng & Min J* 102:491-3 *S* 16 '16
- Concrete**
Abnormally slow setting of small areas of concrete. E. G. Pierce. *Eng Rec* 74:539 *O* 28 '16
Appearance of quaking, mushy and fluid concrete. *il Eng & Contr* 46:100 *Ag* 2 '16
Bad effects resulting from the use of salt water in reinforced concrete structures built in tropical countries. J. L. Harrison. *il Eng & Contr* 46:443-6 *N* 22 '16; Abstract. *Eng N* 76:1047 *N* 30 '16
Bagged concrete foundation for bulkhead wall, New York city, after ten years' service. *Ry R* 59:658 *N* 11 '16
Concrete improvements in Portage park, Chicago. *il diags Concrete* 8:150-1 *Ap* '16
Deformation of concrete under loading. T. T. Quirke. *Eng & Contr* 45:571-2 *Je* 21 '16
Experiments on the effect of hydrated lime on concrete. E. Ashton. *Eng N* 75:470-1 *Mr* 9 '16
Handy volume chart for circular concrete sections. W. F. Schaphorst. *Concrete* 9:114 *O* '16
How much is saved by using a lean mix? C. W. J. Melville. *Concrete* 9:156 *N* '16

Concrete—Continued

- Hydrated lime in spouted concrete. N. G. Hough; W. H. Insley. *Concrete Cem* 7:216 D '15
- Improving concrete by the use of hydrated lime. *Munic Eng* 49:211-12 D '15
- Lime and cement vs. cement. R. M. Creamer. *Eng Rec* 74:508 O 21 '16
- Manual training teachers study use of concrete. *il Concrete* 3:55 Ag '16
- Moving pictures in the study of concrete. N. C. Johnson. *il Eng Rec* 72:684-7, 717-20, 755-8 D 4-18 '15
- Oil-mixed Portland cement concrete. L. W. Page. *il U S Agric Bul* 230:1-26 '15; Same cond. *Sci Am S* 81:79-80, 90-1 Ja 29-F 5 '16; Abstract. *Arch & Bldg* 48:161-3 O '16
- Ten simple directions for small users of concrete. *Eng & Contr* 45:34 Ja 12 '16

See also Bridges, Concrete; Building materials; Cement; Concrete, Reinforced; Concrete construction; Concrete products; Gravel; Grouting; Gunite; Pavements, Concrete; Pipes, Concrete; Roads, Concrete; Sand; Sewers, Concrete; Waterproofing

Aggregate

- Aggregate survey in South Dakota. *Concrete* 8:265 Je '16
- Aggregates for concrete roads; committee report. *Concrete* 8:104-5 Mr '16
- Beach shells as concrete aggregate. A. M. Smith. *Concrete* 8:137 Mr '16
- Burnt clay as concrete aggregate. R. W. Crum. *Concrete* 9:131 O '16
- Coke concrete found strong after seven years. K. A. Heron. *Eng N* 75:850-1 My 4 '16
- Concrete aggregates: classification, sources, physical condition, requirements. W. M. Kinney and D. A. Abrams. *Concrete Cem* 7:195-8 D '15
- Concrete aggregates—tests and test methods—sampling. W. M. Kinney and D. A. Abrams. *il Concrete* 8:62-6 F '16
- Concrete institute makes sand leading topic of convention. *Eng Rec* 73:295+ F 26 '16
- Concrete strength not result of aggregate strength. T. Hendrick. *Eng N* 75:444-5 Mr 9 '16
- Construction features of the Greater Winnipeg water supply. J. H. Fuertes. *W Soc E J* 20:769-75 N '15; Same. *Eng & Contr* 45:140-2 F 9 '16; Same abr. *Concrete* 8:235-6 My '16
- Crushed brick as a concrete aggregate. *Concrete* 9:106 S '16
- Economical production of aggregate at Indianapolis, Ind. J. Hobart. *il Concrete* 9:130-1 O '16
- Factors affecting the strength and proportioning of gravel concretes. R. J. Borhek. *Eng & Contr* 46:306-8 O 4 '16
- Gravel as an aggregate for concrete. H. H. Scofield and C. C. Brown. *Munic Eng* 50:135-6 Ap '16
- How shall a rational specification for gravel be developed? C. C. Brown. *Ry Age* 60:507 Mr 17 '16
- Importance of cement volume in tests of aggregate. H. C. Johnson. *Concrete* 8:185 Ap '16
- Mortar and concrete. R. J. Wigg, G. M. Williams and E. R. Gates. *Munic J* 39:881-2 D 9 '15
- New form of specifications for concrete aggregates. C. M. Chapman. *Eng & Contr* 46:21-3 JI 5 '16; Excerpts. *Ry Age* 61:20-1 JI 7 '16; Excerpts. *Eng Rec* 74:49-50 JI 8 '16
- Portable washing plant for preparing aggregates for concrete road construction. H. C. Campbell. *diags Eng & Contr* 46:15-18 JI 5 '16
- Practical selection of aggregates for concrete. R. J. Borhek. *Eng & Contr* 45:172-3 F 16 '16
- Problem in sorting aggregate in storage bins. M. V. Sauer. *Eng N* 74:1284-5 D 30 '15
- Quality of concrete controlled by tests of sand. C. M. Chapman and N. C. Johnson. *il Eng Rec* 71:801-4 Je 26 '15; Same. *Sibley J* 30:142-8 Ja '16
- Requirements for acceptance of concrete aggregates based upon standard tests. *il Eng Rec* 73:47-9 Ja 8 '16

Safe concrete demands knowledge of nature of sands. C. M. Chapman and N. C. Johnson. *il Eng Rec* 71:771-4 Je 19 '15; Same. *Sibley J* 30:105-11 D '15

Slag concrete shows high strength. *Concrete* 8:191 Ap '16

Trap vs. slag for aggregate. *Eng N* 75:276-7 F 10 '16

Use of crushed brick in concrete. C. H. Fuller. *Concrete* 8:184 Ap '16

Uses of ground slate. *Concrete Cem* 7:214 D '15

Utilization of iron and steel works' slags. E. C. Brown. *Eng Soc W Pa* 31:884-96 Ja '16; Same abr. *Iron Tr R* 59:315-17 Ag 10 '16; Same cond. with discussion. *Concrete* 9:20-3 JI '16; Discussion. *Eng Soc W Pa* 31:897-927 Ja '16

See also Gravel; Sand

Coloring

Coloring concrete roof tile. J. Ruoff. *Concrete Cem* 7:214-15 D '15

Cost

Concrete cost computing chart. A. P. Hoover. *Eng N* 74:795-6 O 21 '15; *Arch & Bldg* 48:21-3 F '16

Curing

Effect of salamanders in concrete construction. C. F. Lewis. *Eng Rec* 72:800 D 25 '15

Electric lights and heaters cure concrete. *il Eng Rec* 73:91-2 Ja 15 '16

Finishing and curing; committee report. *diags Concrete* 8:169 Ap '16

Exhibitions

Chicago cement show most elaborate ever held. *il Eng Rec* 73:298-300 F 26 '16

Expansion

Expansion and contraction; committee report. *Concrete* 8:164-5 Ap '16

Expansion and contraction of concrete. *Munic J* 40:331-2 Mr 9 '16

See also Concrete construction—Expansion joints

Experiments

Joint operation of research laboratory planned by Portland cement assn. and Lewis institute, Chicago. *Eng Rec* 74:496 O 21 '16

Laboratory work of the Portland cement association. *Concrete* 9:sup37-8 O '16

Finishing

Bonding granolithic finish to structural floor. *Concrete* 9:29-30 JI '16

Concrete surfaces plastered and grouted. A. M. Wolf. *Concrete Cem* 8:33-9 Ja '16

Dapple finish for concrete. H. H. Rousseau. *Eng N* 75:277 F 10 '16

Finishing and curing; committee report. *diags Concrete* 8:165-70 Ap '16

Interior wall finish in Panama canal hospital buildings. G. M. Wells. *Eng N* 75:443 Mr 9 '16

Recently executed examples in concrete surfaces. *il Concrete* 9:3-6 JI '16

Sulphate of zinc for walls. G. M. Wells. *Bldg Age* 38:25-6 D '16

Surface treatment of Picaza bridge, Argentine. A. A. Agramonte. *Concrete* 8:160 Ap '16

See also Concrete—Coloring; Concrete stone

Mixing

See Concrete mixers; Concrete mixing

Painting

Tar coating protects high-velocity conduits. C. H. Paul. *Eng Rec* 73:108 Ja 22 '16; Same. *Eng & Contr* 45:56 Ja 19 '16; Same. *Eng N* 75:62-3 Ja 13 '16

See also Concrete—Coloring; Concrete—Finishing; Concrete—Protection

Protection

Chemical destruction of concrete structures and the search for a panacea. W. D'Rohan. *il Concrete* 9:sup11-14 Ag '16

Protection of concrete platforms. *Concrete Cem* 7:215 D '15

Concrete—Protection—Continued

Tar on concrete a protection against water at high velocity. Concrete 9:sup57 Ag '16

Specifications

Specifying strength of concrete rather than quality of aggregates. C. M. Chapman. Concrete 9:97-8 S '16

Two recent specifications for hand-mixed concrete for culvert pipes. Eng N 76:174-5 J1 27 '16

Testing

Calcium chloride hastens seasoning of concrete. Eng Rec 74:266-7 Ag 26 '16

Concrete aggregates—tests and test methods—sampling. W: M. Kinney and D. A. Abrams. il Concrete 8:62-6 F '16

Concrete flows under sustained load. E. C. Smith. Eng Rec 73:329-30 Mr 4 '16

Concrete tests compare gravel, limestone and broken slag. Eng Rec 72:754 D 18 '15

Effect of iron and calcium on concrete sand. T. Saville. il Eng N 74:1242 D 23 '15

Exhibition testing of concrete. D. A. Thomas. Eng N 75:695 Ap 13 '16

Machine tests samples of concrete before removing arch forms. H. E. Ketchum. il Eng Rec 73:812 Je 17 '16

Measuring flow in concrete. C. A. P. Turner; H. F. Moore. Eng Rec 73:652 My 13 '16

New freezing and thawing apparatus is automatic. plan Eng Rec 74:86 J1 15 '16

Requirements for acceptance of concrete aggregates based upon standard tests. il Eng Rec 73:47-9 Ja 8 '16

Slag concrete shows high strength. Concrete 8:191 Ap '16

Slag concrete stronger than broken stone. Eng Rec 73:151 Ja 29 '16

Special grips for large-size concrete tensile tests. C: M. Montgomery. il Eng N 74:1178 D 16 '15

Strength and other properties of concretes as affected by materials and methods of preparation. R. J. Wig, G. M. Williams and E. R. Gates. il diags U S Bur Stand Tech Pa 58:1-172 '16; Abstracts. J Fr Inst 180: 608-13 N '15; Eng N 75:1058-9 Je 1 '16; Eng & Min J 102:134-5 J1 15 '16; Eng & Contr 46:79-80 J1 26 '16; Concrete 9:60-1 Ag '16; Eng Rec 74:283-4 S 2 '16; Good Roads n s 12:110 S 2 '16

Test concrete cured under freezing conditions. Eng Rec 74:78 J1 15 '16

Test of concrete cubes by New York state highway department. Eng & Contr 46:223-4 S 6 '16

Test of new type reinforced-concrete bridge. il diags Eng N 76:620-1 S 28 '16

Tests on hydrated lime addition to concrete for road work. E. Ashton. Eng & Contr 45: 206-7 Mr 1 '16

Wear tests of concrete for road construction; abstracts. D. A. Abrams. il Eng & Contr 46:102-3 Ag 2 '16; Good Roads n s 12:81 Ag 5 '16; Concrete 9:94 S '16

See also Concrete—Aggregate; Concrete, Reinforced—Testing; Concrete slabs—Testing; Floors, Concrete—Testing

Waterproofing

See Waterproofing

Concrete, Cinder

Commission conducts test of cinder concrete. Concrete Cem 8:11 Ja '16

Concrete, Effect of alkalis on

Action of alkali on concrete. Concrete 8:205 My '16

Does alkali disintegrate concrete? Eng Rec 73:316 Mr 4 '16

Durability of cement drain tile in alkali soils. Metal Work 86:436 O 6 '16

Effect of alkali on concrete. Eng & Contr 45: 257 Mr 15 '16

Concrete, Effect of gases on

Effect of boiler stack gases on strength of concrete. A. J. Becker. Eng & Contr 45: 410 My 3 '16

Concrete, Effect of liquids on

Effect of commercial liquids on concrete. Concrete 9:11-12 J1 '16; Abstract. Eng Rec 74: 470-1 O 14 '16

Concrete, Effect of oil on

Effect of lubricating oils on machinery foundations of concrete. L. C. Wason; W: M. Kinney. Concrete Cem 7:214 D '15

Concrete, Effect of sea water on

Characteristics required of concrete to resist action of sea water. W. W. Pagon. Eng & Contr 45:469 My 24 '16; Same. Eng Rec 73:702 My 27 '16; Same. Concrete 9:112 O '16

Chemical destruction of concrete structures and the search for a panacea. W. D'Rohan. il Concrete 9:sup11-14 Ag '16

Qualities required of concrete to resist action of sea water. W. W. Pagon. Eng & Min J 102:215-16 J1 29 '16

Use of concrete in sea-water. Concrete Cem 7: 205 D '15

Concrete, Effect of sewage on

Concrete pipe for sewers. Concrete 8:87-8 F '16 Is concrete a good sewer material?—let 49 municipal engineers answer. Concrete 8:76-80 F '16

New and old sewers taking stockyard sewage. Eng N 76:487-8 S 14 '16

Sewer gas affects concrete above water line in Chicago sewer. B: Brooks. il diag Eng N 76:486-7 S 14 '16

Concrete, Effect of sugar on

Effect of sugar on concrete. Concrete 9:61 Ag '16

Concrete, Reinforced

Bending moment in continuous reinforced-concrete beams. R. J. Roark. diags Eng N 75:354-5 F 24 '16

Bending reinforcing bars. A. M. Wolf. Concrete 9:103 S '16

Better docks for less money; reinforced concrete proves ideal material for pier construction. H. M. Farrand. il diag Int Marine Eng 21:468-9 O '16

Bond and shear in reinforced footing offsets. C. Older. diag Eng N 76:18-19 J1 6 '16

Bond of steel in reinforced concrete. C. A. Baughman. Concrete 8:151 Ap '16

Can wire cable be used for concrete reinforcement? Concrete 9:162-3 N '16

Concrete automobile shelter in Graceland cemetery, Chicago. H. C. Campbell. il diags Concrete 8:114 Mr '16

Concrete equivalents for steel beams. G: A. Merrill. Eng & Contr 46:280 S 27 '16

Data on the requirements of different building regulations and authorities governing reinforced concrete columns; table. P. P. Furber. Eng & Contr 45:204-6 Mr 1 '16

Design and construction of the Austin, Texas, reinforced concrete reservoir. L. Lyndon. diags Eng & Contr 45:186-7 F 23 '16

Design features of the Edgewater beach hotel building, Chicago. diags plan Eng & Contr 45:278-80 Mr 22 '16

Diagram useful for bending up steel reinforcement. K. D. Schwendener. Eng Rec 74: 239 Ag 19 '16

Diagrams for cost of placing steel reinforcement. D. Patch. Eng Rec 74:264 Ag 26 '16

Double reinforcement in Monier arch patent. diag Eng Rec 73:748 Je 3 '16

Dynamite, oxy-acetylene, fire and cranes required to wreck concrete bins. il Eng Rec 73: 515-16 Ap 15 '16

Economic design of pile foundations. C: E. Anderson. diag Eng & Contr 46:285-7 S 27 '16

Economy of continuity in reinforced concrete. R. J. Roark. Eng N 75:790-2 Ap 27 '16

Elevated railway of domed arch construction a strong contrast to steel structure. il diags Eng Rec 74:254-6 Ag 26 '16

Elevator pits and machinery floors in concrete buildings. A. M. Wolf. diags Eng & Contr 46:448-50 N 22 '16

Flat slab used at Lackawanna South Orange crossing. il diags plan Eng N 75:526-9 Mr 16 '16

Hopple street viaduct, Cincinnati, is built with cantilever beams of arch form. E. K. Ruth. il diags Eng Rec 74:381-4 S 23 '16

Lackawanna improvements at South Orange. A. B. Cohen. il diag plan Ry Age 60:683-7 Mr 24 '16

Manufacture and sale of reinforced concrete floor beams. il diags Concrete 9:157-9 N '16

Modern concrete sewers and other structures. diags Sci Am S 81:165 Mr 11 '16

Concrete, Reinforced—Continued

- Moment diagram and its relation to the reinforcement of a concrete beam; abstract. S. C. Hollister. *Am Soc M E J* 38:353 Ap '16
- Notched steel brackets aid placing of hoop reinforcement for concrete reservoir; Duluth's 5,000,000-gallon circular basin concreted during freezing weather. E. W. Kelly. *il diags Eng Rec* 74:312-14 S 9 '16
- Pressed-steel floor forms left in place on two-mile bridge at St. Louis eliminate carpenters. *il Eng Rec* 73:760-2 Je 10 '16
- Reinforced-concrete ore dock at Ashland, Wis. W. E. King. *diags plan Eng N* 76:242-5 Ag 10 '16
- Reinforced concrete roof trusses. A. M. Wolf. *il diags Concrete* 8:251-7; 9:13-18 Je-Jl '16
- Reinforcement; committee report. *Concrete* 8:163-4 Ap '16
- Slab design to use less concrete is verified by experiments. R. B. Melvin. *il diags Concrete Cem* 7:208-10 D '15
- Spacing diagram for hoop reinforcing for reinforced concrete standpipes. F. H. Carter. *Eng & Contr* 46:133 Ag 9 '16
- Spacing of shear steel in concrete beams. R. S. Beard. *Eng N* 75:996-7 My 25 '16
- Special methods of reinforced concrete design. M. J. Lorente. *diags Boston Soc C E J* 2:265-79 S '15; Discussion. 2:280-2; 3:29-35 S '15, Ja '16
- Spiral steel placed in power house foundations. *il Eng Rec* 73:479 Ap 8 '16
- Splicing reinforcing in heavy circular construction. *Concrete* 8:273-4 Je '16
- Stirrup spacing diagrams. F. S. Bailey. *Eng N* 76:694-5 O 12 '16
- Tearing down an old concrete ice factory. A. G. Hoadley. *il plan Eng N* 76:729-31 O 19 '16
- Wrecking concrete structures with explosives. P. W. Scharros. *Eng & Contr* 45:293-4 Mr 29 '16
- See also* Building materials; Concrete; Concrete construction; Concrete slabs; Retaining walls, Concrete; Steel reinforcing bars

Patents

- Another reinforced-concrete patent decision. E. Godfrey. *Eng N* 76:668-9 O 5 '16
- Bone wall patent invalid because anticipated. *Eng Rec* 73:243-4 F 19 '16
- Bone's retaining-wall patent and its anticipations. *diags Eng N* 75:254-9 F 10 '16
- Concrete dock patent upheld in Court of appeals. *Eng N* 76:961-2 N 16 '16
- Early history of the Bone cantilever wall. E. P. Bone. *Eng N* 75:573-5 Mr 23 '16
- Is development invention? *diags Eng N* 75:813-16 Ap 27 '16
- Judge Anderson's decision on the Bone retaining wall. *Eng N* 75:338-9 F 17 '16
- Patent for arch reinforcement declared valid. *diag Eng Rec* 73:274-5 F 26 '16
- Patents on reinforced concrete. D. Royse. *Eng N* 75:185 Ja 27 '16
- Patents on reinforced concrete. F. A. Camp; H. T. Eddy. *Eng N* 74:1236-8 D 23 '15
- Thacher bridge patent loses in Iowa district court; decision of M. J. Wade. *Eng N* 76:621 S 28 '16
- Thacher patent suit. *Eng N* 75:580 Mr 23 '16
- Two Turner patents defeated. *Eng N* 76:769-70 O 19 '16

Testing

- Analysis and tests held to show advantages of new flat-slab reinforcement. E. Smulski. *diags Eng Rec* 73:217-19, 247-50 F 12-19 '16
- Clamped splices. E. L. Lasier; A. C. Hewitt. *Concrete* 9:136-7 O '16
- Clamping splices in reinforcing bars. W. A. Collings; E. Godfrey. *Eng & Contr* 46:442 N 22 '16
- Concrete deformations increase with time. A. H. Fuller and C. C. More. *Eng Rec* 73:279 F 26 '16
- Extensometer tests on three types of concrete floors. *Eng N* 75:992-3 My 25 '16
- Strength of clamped splices in concrete reinforcement bars. C. A. Herrick. *diag Eng & Contr* 46:355-6 O 25 '16; Same. *Concrete* 9:165 N '16

- Strength of clamped splices in concrete reinforcement bars. E. L. Lasier. *diag Concrete* 9:85-8 S '16; Conclusions. *Eng & Contr* 45:578-9 Je 28 '16; Conclusions. *Eng Rec* 74:48-9 Jl 8 '16
- Strength of clamped splices in concrete reinforcement bars. E. McCullough. *Eng & Contr* 46:442-3 N 22 '16
- Strength of clamped splices in reinforcement bars. E. McCullough. *Concrete* 9:104 S '16; Same. *Eng & Contr* 46:271-2 S 27 '16; Same. *Eng Rec* 74:361 S 16 '16
- Test of mushroom flat slab. *Eng Rec* 73:778-9 Je 10 '16
- Test of mushroom flat slab in Seattle warehouse shows high local stresses. D. E. Hooker. *il diags Eng Rec* 73:647-9 My 13 '16
- Tests of reinforced concrete flat slab structures. A. N. Talbot and W. A. Slater. *il diags Ill U Eng Exp Sta Bul* 84:1-128 '16
- Tests to determine the effective width of large concrete bridge slabs. A. T. Goldbeck and E. B. Smith. *Eng & Contr* 45:447-9 My 17 '16; Same cond. *Eng Rec* 73:282 F 26 '16; Excerpts. *Eng N* 75:387 F 24 '16
- Tests to determine the load distribution through reinforced concrete slabs. *diags Eng & Contr* 44:490-2 D 29 '15

Concrete barges. See Barges, Concrete

Concrete benches. See Benches, Concrete

Concrete bins. See Bins, Concrete

Concrete blocks

- Block cottages, plastered direct, in New Zealand. W. D. Cowperthwaite. *il Concrete Cem* 8:16-18 Ja '16
- Cellular type of quay wall at Halifax terminals compared with other designs. *diags Eng Rec* 73:213-15 F 12 '16
- Chicago concrete block house of good appearance. *il plans Concrete Cem* 8:20-1 Ja '16
- Concrete block and the fire hazard. *Concrete* 9:2 Jl '16
- Concrete blocks, to support reinforcing, simply made. *Eng Rec* 74:182 Ag 5 '16
- Concrete plant for Halifax ocean-terminal work. *il diags plan Eng N* 75:249-53 F 10 '16
- Dry wall block as made in Cleveland. *il Concrete* 8:93 F '16
- New interlocking block used in England. *il Concrete* 9:108 S '16
- Weir and head walls of Morris dam faced with concrete block. C. L. Nord. *Concrete* 9:127 O '16

See also Concrete bricks

Concrete bricks

- Successful concrete brick and cast stone plant. *il diags Concrete* 9:82-4 S '16

Concrete bridges. See Bridges, Concrete

Concrete buildings

- Concrete buildings are free from depreciation. E. McCullough. *Eng N* 76:954 N 16 '16
- Zeppelin bombs fail to wreck concrete building. *Concrete* 8:130 Mr '16

Concrete chimneys. See Chimneys, Concrete

Concrete columns. See Columns, Concrete

Concrete construction

- Addition to Detroit plant of Ford motor co. sets new mark for rapid concrete construction. *il plan Eng Rec* 74:430-1 O 7 '16
- American concrete institute; abstracts of papers presented at 12th annual meeting, Chicago, Feb. 14-17. *Eng Rec* 73:277-82 F 26 '16
- Architectural possibilities of reinforced concrete shown in College of the city of New York stadium. *il diags Eng Rec* 73:10-12 Ja 1 '16
- Box concrete retaining wall on Western Pacific Ry.; with cost table. J. H. Knowles. *il diags Eng N* 75:633-5 Ap 6 '16
- Building 50,000-gal. concrete standpipe in 40 hours. G. A. Sampson. *il diags Eng N* 74:1226-7 D 23 '15
- Casting station busbar compartments in place. *il Elec W* 68:179-80 Jl 22 '16
- Chinese build reinforced-concrete warehouses. E. Park. *il Eng Rec* 74:557 N 4 '16
- Combined concrete and tile construction. *Sci Am* 82:219 S 30 '16
- Concrete cells for circuit breakers and busbars. C. H. Sanderson. *il diags Elec W* 67:1402-4 Je 17 '16

Concrete construction—Continued

- Concrete coal cylinders built with moving forms. C: H. Higgins. il Eng N 75:420-1 Mr 2 '16
- Concrete stadium a part of a high school building; Central high school, Washington, D. C. il diags Eng N 75:138-9 Ja 20 '16
- Concrete stone, with brushed-out surface used in military academy building. C. W. Alger. il Concrete 9:41-4 Ag '16
- Constructing a thousand-ton concrete block for a jetty head. G: F. Whittemore. diags Eng & Contr 45:138-9 F 9 '16
- Construction joints in concrete buildings. A. M. Wolf. diags Concrete 9:95-6 S '16
- Construction methods on viaducts of the Lackawanna railroad over Tunkhannock and Martins creeks. C. W. Simpson. il Munic Eng 50:94-8 Mr '16
- Construction of a fireproof concrete school house, Torrington, Wyo., at low cost. il diags plans Concrete 9:141-3 N '16
- Construction of a sanitary and fireproof concrete creamery building. il plan Concrete 8:276 Je '16
- Construction of 160 million gallon filter plant at St. Louis. J: C. Pritchard. il diag plan Concrete 8:260-5 Je '16
- Design and construction features of a reinforced concrete hotel building at Lake Louise, Alberta, Canada. W: W. Hay. il diag Eng & Contr 45:299-301 Mr 29 '16
- Design and construction of the unit-built reinforced concrete train sheds of the Denver Union station. A. M. Wolf. il diags Eng & Contr 46:358-60 O 25 '16
- Design and construction of world's highest reinforced concrete water tower-tank, Middleboro, Mass. G: A. Sampson. il diags Eng & Contr 44:473-5 D 22 '15
- Details of construction that are out of date. A. M. Wolf. Concrete 9:68-9 Ag '16
- Diverse methods feature New York subway concreting. R. Ridgway. il Eng Rec 73:280-2 F 26 '16
- Dome of reinforced concrete at Ocean Park, Cal. il Sci Am 115:440 N 11 '16
- Hollow columns and roof ducts to ventilate concrete building of Cluett, Peabody & co., Troy, N. Y. il diags Eng Rec 74:658-9 N 25 '16
- How to build concrete tennis courts. il diag Eng Rec 74:358-9 S 16 '16
- How to get a start in the concrete construction business. Concrete 9:67-8 Ag '16
- Insulating and waterproofing the roof of an underground room. diags Concrete 8:133-5 Mr '16
- Manufacture and sale of concrete burial vaults. Concrete Cem 7:206-7 D '15
- Method of handling a concrete job. L. C. Wason. Concrete 8:200 My '16
- New concrete building system. Eng N 75:880 My 11 '16
- Oil-mixed Portland cement concrete. L. W. Page. il U S Agric Bul 230:10-15 '15; Same. Sci Am S 81:90-1 F 5 '16
- Outlet boxes for electrical conduits in concrete. A. M. Wolf. Eng N 74:1238 D 23 '15
- Portable concrete buildings for railways. A. M. Wolf. il Concrete 9:64 Ag '16
- Quick work in building construction. Concrete 9:127 O '16
- Reinforced concrete buildings for the Naumkeag steam cotton co., Salem, Mass. il Arch & Bldg 48:119-20 Jl '16
- Reinforced-concrete coal pier for Pennsylvania R. R. at Baltimore. diags Eng N 75:399 Mr 2 '16
- Reinforced concrete combined with timber for coal pockets and trestle. C: F. Dingman. il diags Eng Rec 73:43-4 Ja 8 '16
- Replacing mortar blocks in stamp mills. C: Labbe. diag Eng & Min J 102:391-2 Ag 26 '16
- Revere beach rampway. W. B. Conant. il Munic J 39:951-2 D 23 '15
- San Francisco will protect beach with bleachers. il diag Eng Rec 74:560-1 N 4 '16
- Steel traveler and forms for retaining wall construction. il Eng & Contr 46:170 Ag 23 '16
- Suggestions for building private garages of concrete. il plans Concrete 8:243-7 Je '16
- Track elevation project on the Evanston branch of the C. M. & St. P. il diags map Ry Age 60:755-9 Mr 31 '16
- Ugly and defective concrete work on public buildings. F. W. Brady. Concrete 8:137 Mr '16
- Water basin for city of Omaha constructed by day labor, using new special devices. H. V. Knouse. il diags Eng Rec 74:527-9 O 28 '16
- World's reinforced-concrete construction record claimed for frame of Philadelphia factory. il plan Eng Rec 74:160-1 Ag 5 '16

See also Barns and stables, Concrete; Bomb-proof cellars; Bridges, Concrete; Catskill aqueduct; Columns, Concrete; Concrete—Finishing; Concrete, Reinforced; Concrete blocks; Concrete houses; Concrete lining; Concrete placing; Concrete plants; Concrete slabs; Concrete stone; Cribs, Concrete; Dams, Concrete; Fireproof construction; Floors, Concrete; Railroads—Concrete work; Reservoirs, Concrete; Retaining walls, Concrete; Sewers, Concrete; Silos, Concrete; Stairways, Concrete; Standpipes, Concrete; Tanks, Concrete; Trestles, Concrete; Walls, Concrete; Water towers, Concrete

Accounting

- Cost keeping methods for concrete construction. Eng & Contr 46:458-60 N 22 '16
- Simple and efficient cost keeping system for concrete construction. H. J. Gould. Eng & Contr 46:199-202 Ag 30 '16

Cost

- Building low cost houses with unit forms and continuous conveyor system. il Concrete Cem 8:31-2 Ja '16
- Comparative cost of concrete and mill buildings. L. H. Allen. Concrete 9:135-6 O '16
- Concrete cost computing chart. il Eng & Min J 100:930 D 4 '15
- Concrete shaft lining; development of form handling and concrete placing methods. diags Eng & Contr 45:144-50 F 9 '16
- Cost of a concrete building. Bldg Age 38:65-6 Ag '16
- Cost of a concrete mill building. Textile World 51:3901 S 9 '16
- Cost of cold storage buildings. P. R. Newman. Concrete 9:163 N '16
- Cost of concrete buildings. W. P. Anderson. Mach 22:978-9 Jl '16
- Cost of factory buildings of timber and of concrete. F. E. Davidson; T. L. Condon. Eng N 76:884-6 N 9 '16; Same. Eng & Contr 46:450-2 N 22 '16
- Cost of reinforced concrete retaining wall and of special method of handling coal. diags Eng & Contr 45:207 Mr 1 '16
- Cost of structures of the second unit of the Dodson north canal, Milk river irrigation project, Malta, Mont. A. E. Bechtel. il Eng & Contr 46:126-9 Ag 9 '16
- Costs of concrete and mill type buildings. Concrete 9:25 Jl '16; Same cond. Eng & Contr 46:95 Jl 26 '16
- Costs on excavation and concrete for Mayfair pumping station, Chicago, Ill. Eng & Contr 46:364 O 25 '16
- Diagrams for cost of placing steel reinforcement. D. Patch. Eng Rec 74:264 Ag 26 '16
- Group of concrete houses erected at Newark, Ohio. G: V. K. Greene. il plans Concrete Cem 8:26-8 Ja '16
- Methods and cost of constructing a reinforced concrete building. E. W. Robinson. il diags plan Concrete 8:47-50 F '16
- Methods and cost of constructing a reinforced concrete storehouse. E. R. Gayles. Eng & Contr 46:172-3 Ag 23 '16
- Methods and cost of constructing a 60-in. reinforced concrete sewer. E. W. Robinson. diags Concrete 8:195-6 My '16
- Molded concrete house of today; with figures of cost. M. D. Morrill. il plans Bldg Age 38:39-40 F '16

Concrete construction—Cost—Continued

Overflow bridges—types of overflow bridges used in McLennan county, Texas. W. C. Davidson. *il* *diags* Eng & Contr 46:176-80 Ag 23 '16

Review of records of reinforced concrete inverted siphon construction. *diags* Eng & Contr 45:247-50 Mr 15 '16

Unit costs in building construction. S. E. Thompson. Concrete 8:129-30 Mr '16; Same. Eng & Contr 45:220-1 Mr 1 '16; Same cond. Eng Rec 73:277-8 F 26 '16

Design

Design methods in concrete construction—arches with fixed ends. A. M. Wolf. *diags* Concrete Cem 7:137-44, 199-205; 8:80-3 O, D '15, F '16

Design of new Germanic museum at Harvard required solution of many special problems. C. R. Perry. *diags* Eng Rec 73:443-4 Ap 1 '16

Design of symmetrical hingeless concrete arches. V. H. Cochrane. *diags* Eng Soc W Pa 32:647-713 N '16

Diagrams for the design of reinforced concrete T beams. M. A. Drucker. Eng & Contr 45:579-80 Je 28 '16

Economic design of pile foundations. C. E. Anderson. *diag* Eng & Contr 46:285-7 S 27 '16

Elevated railway of domed arch construction a strong contrast to steel structure. *il* *diags* Eng Rec 74:254-6 Ag 26 '16

Elevator pits and machinery floors in concrete buildings. A. M. Wolf. *diags* Eng & Contr 46:448-50 N 22 '16

Fallacy in the design of retaining walls. G. D. Fish. Eng N 75:268-9 F 10 '16

Large reinforced concrete coaling plant. Proctor, Minn. *il* *diags* Ry Age 61:542-4 S 29 '16

Large river wall of unusual design at Cedar Rapids. *il* *diags* Eng N 75:588-90 Mr 30 '16

Long-span concrete arched bents support roof of Chicago Hebrew institute. *il* *diag* Eng Rec 74:257-8 Ag 26 '16

Platform shelters of concrete unit construction. *il* *diag* Eng N 76:73 Jl 13 '16

Reinforced-concrete frame of new Germanic museum at Harvard is unusually complex. *il* *diags* plan Eng Rec 73:440-2 Ap 1 '16

Reinforced-concrete ore dock at Ashland, Wis. W. E. King. *diags* plan Eng N 76:242-5 Ag 10 '16

Reinforced concrete roof trusses. A. M. Wolf. *il* *diags* Concrete 8:251-7; 9:13-18 Je-Jl '16

Reinforced concrete train shed of unit construction. *il* *diags* Ry Age 60:155-8 Ja 28 '16

Slide rules for reinforced concrete design. E. F. Rockwood. 2 pls Boston Soc C E J 3: 207 My '16

Special methods of reinforced concrete design. M. J. Lorente. *diags* Boston Soc C E J 2: 265-79 S '15; Discussion. 2:280-2; 3:29-35 S '15, Ja '16

Structural design of a peaked reinforced-concrete roof. J. N. Jensen. *il* *diag* Eng N 76: 372-3 Ag 24 '16

Study of effective width of reinforced concrete slabs. A. T. Goldbeck and E. B. Smith. Eng & Contr 46:87-8 Jl 26 '16

Three-level concrete conduit design outlined. F. H. Fay. Eng Rec 73:282 F 26 '16

Two-story concrete car barn in Vancouver designed with steel columns. *il* *diags* plan Eng Rec 74:584-5 N 11 '16

Water-filled asphalt on the Baltimore & Ohio R. R. *diags* Eng N 75:1085 Je 8 '16

See also Girders

Estimates

Concrete estimating facilitated by table. Eng Rec 73:421 Mr 25 '16

Contractors should not rely on engineers' estimates. Eng N 75:235, 476-8, 621 F 3, Mr 9, 30 '16

Unit costs in building construction. S. E. Thompson. Concrete 8:129-30 Mr '16; Same. Eng & Contr 45:220-1 Mr 1 '16; Same cond. Eng Rec 73:277-8 F 26 '16

Expansion joints

Expansion joint construction for concrete bridge railing. C. W. Martin. *diag* Eng & Contr 46:181 Ag 23 '16

Waterproofing the Lackawanna railroad's new viaducts. G. J. Ray. *diags* Eng N 75:430 Mr 2 '16; Same. Ry R 58:401-2 Mr 18 '16

See also Pavements—Expansion joints

Failures

Bad effects resulting from the use of salt water in reinforced concrete structures built in tropical countries. J. L. Harrison. *il* Eng & Contr 46:443-6 N 22 '16

Careless work causes concrete bridge failure at Independence, Ore. *il* Eng N 76:672 O 5 '16

Chimney fails from insufficient curing. F. R. McMillan. *il* *diags* Concrete 9:100 S '16

Cleveland filter roof collapse under investigation. *diags* Eng N 76:186 Jl 27 '16

Concrete floor falls after early removal of forms. E. B. McGuire. *il* Eng N 76:1050-1 N 30 '16

Failure of concrete reservoir built on old stone wall. *il* Eng N 76:404-5 Ag 31 '16

Failure of Roxbury school building apparently caused by faulty brick piers; abstracts. S. E. Thompson. *il* Eng Rec 74:294-6 S 2 '16; Concrete 9:116-17 O '16; Eng N 76:262-5 Ag 10 '16

Frozen concrete and poor design cause failure. Eng N 75:579 Mr 23 '16

Frozen concrete and weak supports wreck Stanhouse building, Rockford, Ill. E. McCullough. *il* Eng Rec 72:708-9 D 4 '15

Poor concrete in columns caused failure of bridge at Independence, Ore. C. B. McCullough. *il* Eng Rec 74:597 N 11 '16

Repair beams and columns in concrete structure; Majestic theater, Fort Worth, Tex. *diags* plan Eng Rec 74:538 O 28 '16

Reservoir wall, Madison, Wis., fails when backfill is removed. *il* Eng Rec 74:343 S 16 '16

Salt water causes cracking concrete in Philippines. J. L. Harrison. Eng N 76:1047 N 30 '16

Worthless concrete responsible for failure at Cleveland filter plant. *il* Eng Rec 74:151 Jl 29 '16

See also Sewer failures

Fire resistance

Fire or explosion wrecks part of concrete warehouse of Mullen & Buckley, Far Rockaway, N. Y. *il* plan Eng N 76:956-8 N 16 '16

Forms

Adjustable shore for concrete formwork. *il* *diag* Eng & Contr 46:368 O 25 '16

Building concrete forms for small bridge abutments and piers. J. C. Worrell. Eng & Contr 46:83-4 Jl 26 '16

Building-foundation specialists use sectional forms. *il* *diag* Eng Rec 74:182 Ag 5 '16

Concrete bridge completed from suspended forms. F. R. Goodman. *il* *diag* Eng N 76:786-7 O 26 '16

Concrete grain elevator built with steel forms at Niantic, Ill. *il* Concrete 9:151 N '16

Concrete house constructed by new form system. *il* *diags* plans Concrete Cem 8:32-3 Ja '16

Concrete shaft lining; development of form handling and concrete placing methods. *diags* Eng & Contr 45:144-50 F 9 '16

Concrete walls built with simple form equipment. *il* Concrete 8:110 Mr '16

Construction features used by concrete building firm. Ferro concrete construction company. *il* Eng N 76:991-3 N 23 '16

Construction methods of a concrete foundation specialist. *il* Concrete 9:113-14 O '16

Design and construction of forms for concrete work. R. A. Sherwin. Eng & Contr 45:209-10, 231-4, 257-60 Mr 1-15 '16; Excerpts. Eng Rec 73:278-9 F 26 '16; Ry Age 60:505-7 Mr 17 '16

Flexible mat system of centering. *il* Eng & Contr 46:284 S 27 '16

Form construction to safeguard life and property. E. McCullough. Concrete 9:160-1 N '16; Abstracts (New tables to aid design of concrete form supports). Eng Rec 74:586 N 11 '16; Abstract. Eng & Contr 46:460-1 N 22 '16

Forms for concrete—their construction and movement on the job. R. A. Sherwin. Concrete 8:214-16 My '16

Concrete construction—Forms—Continued

Forms for concrete work—some factors to be considered in their design. R. A. Sherwin. *diags Concrete* 8:154-60 Ap '16

Forms for handrail in large viaduct used 66 times each. H. E. Ketchum. *il Eng Rec* 74:322 S 9 '16

Forms for heavy concrete draft-tubes. H. H. Brown. *diag Eng N* 76:76-7 Jl 13 '16

Good form design saves in labor and lumber on building work. *Eng Rec* 73:365 Mr 11 '16

Groined arch as a means of concrete floor construction. H. W. Brown. *pl Boston Soc C E J* 3:148, 154-6 O '16; *Excerpts. Eng & Contr* 16:446-8 N 22 '16

Large bridge pier construction using steel forms. *il Eng & Contr* 46:90-1 Jl 26 '16

Light traveler straddles reservoir wall to handle forms. *il Eng Rec* 74:90 Jl 15 '16

Methods and cost of constructing a reinforced concrete storehouse. E. R. Gayles. *il diags Eng & Contr* 46:171-3 Ag 23 '16

New methods in building concrete cottages. C. E. Drayer. *il plan Eng N* 74:1116-17 D 9 '15

New non-removable floor form. *diag Concrete* 8:93-4 F '16

New type of cantilever form saves erection time. *il Eng Rec* 74:631-2 N 18 '16

Non-removable sheet steel forms for floor construction. *diag Concrete Cem* 7:221 D '15

Pressure of wet concrete on the sides of column forms. A. B. McDaniel and N. E. Garver. *il diags Eng N* 75:933-6 My 18 '16

Shallow form as aid in coating roof trusses with cement mortar. R. C. Hardman. *diag Eng Rec* 74:632 N 18 '16

Sheepskin brush solves oiling troubles in narrow forms. B. M. Mathias. *Eng Rec* 73:153 Ja 29 '16

Shores and clamps for concrete construction. *Munic J* 39:931-2 D 16 '15

Special methods in building concrete footing walls. *il Eng N* 76:362-3 Ag 24 '16

Steel forms on foundation work. *il Concrete* 9:120 O '16

Steel telescopic sewer forms. *il Munic Eng* 50:36 Ja '16

Steel wall forms for Imhoff tank construction at Columbus sewage treatment plant. *il Eng & Contr* 46:31 Jl 12 '16

System of home-made wall forms as worked out by two builders. *il diags Concrete* 8:127-8 Mr '16

Traveler for moving steel forms of water conduit. *il Eng N* 74:1276 D 30 '15

Patents

See Concrete, Reinforced—Patents

Concrete construction in mines

Concrete stoppings for mine ventilation. *Eng & Contr* 45:129 F 9 '16

Concrete tippie in Ohio. W. G. Burroughs. *il diag Coal Age* 10:872-3 N 25 '16

Concreting the Barron shaft in Pachuca, Mexico. J. E. Smith. *diags Eng & Min J* 101:676-9 Ap 15 '16

Concrete construction in winter

Cold weather and concrete—what precautions to take. *Concrete* 9:115 O '16; Same cond. *Elec Ry J* 48:458-9 S 9 '16; Same cond. *Eng & Contr* 46:279-80 S 27 '16; Same cond. *Eng Rec* 74:319-20 S 9 '16; *Abstract. Munic J* 41:316-17 S 14 '16

Concrete plant and methods used in constructing Hotel Traymore, Atlantic City. N. J. *plan Eng & Contr* 45:14-15 Ja 5 '16

Contractor handles electrically concrete materials for Edgewater hotel, Chicago. *il diags Eng Rec* 73:150-1 Ja 29 '16

Electric heating used to rush completion of concrete work. *il diags Elec W* 67:152-3 Ja 15 '16

Form construction to safeguard life and property. E. McCullough. *Concrete* 9:161 N '15

Freezing of flood water under swamp buckles falsework. R. C. Hardman. *Eng Rec* 73:123-4 Ja 22 '16

Improvised blow torch heats concrete inside the mixer. *Eng Rec* 73:294 F 26 '16

Laying concrete in freezing weather. D. A. Watts. *Eng & Contr* 46:454-5 N 22 '16

Laying concrete in polar weather. W. E. Harnden. *Munic J* 40:195-6 F 10 '16

Light wooden roof truss for canvas inclosure. C. B. Chace. *diags Eng N* 75:612-13 Mr 30 '16

Notched steel brackets aid placing of hoop reinforcement for concrete reservoir; Duluth's 5,000,000-gallon circular basin concreted during freezing weather. E. W. Kelly. *il diags Eng Rec* 74:312-14 S 9 '16

Sperry building, Brooklyn, N. Y. built in winter. *il Arch & Bldg* 48:172 N '16

Steam-jacketed forms for winter concreting. *il diags Eng N* 76:269-70 Ag 10 '16

Test concrete cured under freezing conditions. *Eng Rec* 74:78 Jl 15 '16

Winter concreting under canvas. A. M. Wolf. *il Eng N* 74:1180-1 D 16 '15

Concrete cribs. See Cribs, Concrete

Concrete curbs. See Curbs, Concrete

Concrete dams. See Dams, Concrete

Concrete failures. See Concrete construction—Failures

Concrete fence posts. See Fence posts, Concrete

Concrete floors. See Floors, Concrete

Concrete garages. See Garages, Concrete

Concrete houses

Architect's own house with concrete walls and floors. M. D. Morrill. *il plans Concrete Cem* 8:19-20 Ja '16

Band box, two family apartment, to be built of concrete. G. M. Rees. *diags plan Concrete* 8:61 F '16

Block cottages, plastered direct, in New Zealand. W. D. Cowperthwaite. *il Concrete Cem* 8:16-18 Ja '16

Building low cost houses with unit forms and continuous conveyor system. *il Concrete Cem* 8:31-2 Ja '16

Builds hollow wall bungalow with home made machine. H. L. Wilson. *il plan Concrete Cem* 8:30 Ja '16

Chicago concrete block house of good appearance. *il plans Concrete Cem* 8:20-1 Ja '16

Concrete, boulders and casements, features of Waco house. *il plans Concrete Cem* 8:28 Ja '16

Concrete cottages for employes, Whittingham sewage farm, Norwich, England. F. C. Perkins. *il Eng & Contr* 45:505-6 My 31 '16

Concrete house constructed by new form system. *il diags plans Concrete Cem* 8:32-3 Ja '16

Concrete house of hollow wall type. *il plans Bldg Age* 38:79-80 Ap '16

Concrete house with pre-cast walls. *il plans Concrete* 8:197-8 My '16

Concrete house with tile-lined walls at Jersey City, N. J. C. F. Dingman. *il Concrete* 8:110 Mr '16

Double wall concrete house economically built in cold weather. C. W. Baumgardner. *il plans Concrete* 8:111-12 Mr '16

Eight years of nature's work on concrete house at South Orange, N. J. *il Concrete Cem* 8:7-8 Ja '16

Engineer builds economical concrete house with simple equipment. *il plans Concrete Cem* 8:3-5 Ja '16

English rural two-family cottages of concrete block and stucco. *il plans Concrete Cem* 8:29 Ja '16

Example of fireproof residence construction at Kansas City, Mo. *il plans Concrete Cem* 8:14-16 Ja '16

Furring walls and plastering direct in concrete house construction. *Concrete Cem* 8:36-7 Ja '16

Group of concrete houses erected at Newark, Ohio. G. V. K. Greene. *il plans Concrete Cem* 8:26-8 Ja '16

How I built my ideal concrete home. W. G. Hoag. *il plans Bldg Age* 38:47-52 F '16

Low cost houses for industrial operatives. C. D. Gilbert. *diags plans Concrete* 8:258-9 Je '16

Molded concrete house of today; with figures of cost. M. D. Morrill. *il plans Bldg Age* 38:39-40 F '16

New methods in building concrete cottages. C. E. Drayer. *il plan Eng N* 74:1116-17 D 9 '15

Simple apparatus raises side of concrete house. *il Concrete Cem* 8:41-2 Ja '16

Concrete houses—Continued

Two houses of poured concrete erected at Middleburg, Va. il plans Concrete Cem 8:22-3 Ja '16

\$2,500 concrete cottage, Thomas estate, near Middleburg, Va. il Concrete Cem 8:12 Ja '16
Typical two-family house complies with Salem's strict building code. C. D. Gilbert. il diags plan Concrete Cem 8:24-6 Ja '16

See also Concrete construction; Floors, Concrete

Concrete institute, American. See American concrete institute

Concrete lining

Concrete-lined reservoir at Salt Lake City, Utah. S. Q. Cannon. il Eng N 74:1249 D 30 '15

Concrete shaft lining: development of form handling and concrete placing methods. diags Eng & Contr 45:144-50 F 9 '16

Cost of concrete lining laterals on average job. Eng Rec 73:747-8 Je 3 '16

Design and structural details of concrete lining for irrigation canals. S. Fortier. diags Concrete 8:174-8 Ap '16

Lining a 114-ft. well with precast concrete rings. diags Eng N 76:608-9 S 28 '16

Lining Hill View reservoir, New York city, with concrete and riprap. A. W. Tidd. il plan Eng N 75:1022-7 Je 1 '16

Lining the shafts of mines—a downward system. M. Gilliaux. Concrete 8:139 Mr '16

Lowering a tunnel under the Chicago river. il diags Eng N 76:369-71 N 23 '16

Machine for lining ditches. il Eng N 75:708 Ap 13 '16

Machine for placing concrete lining in canals. E. I. Davis. il Eng N 75:264-7 F 10 '16

Method of relining a tunnel with steam jetted concrete. H. P. Brown. il Eng & Contr 45:181-2 F 23 '16

Methods and costs of concrete lining irrigation laterals, Orland project, U. S. reclamation service. A. N. Burch. Eng & Contr 45:352 Ap 12 '16

Needle-beam heading method applied to sewer tunnel in dry ground. il Eng Rec 73:324-5 Mr 4 '16

Placing concrete lining in tunnels by compressed air. il diag Engineer 122:354-5 O 20 '16

Pneumatic mixer lines railway tunnel under traffic. il diag Eng N 76:936-8 N 16 '16

Reconstruction of a reservoir at St. Louis, Missouri. il diags Eng N 74:1206-9 D 23 '15
Relining a leaky reservoir at Omaha, Neb. il diag Eng N 76:646-7 O 5 '16

Review of records of concrete casing and lining steel and wood stave pipe siphons. diags Eng & Contr 45:416-20 My 3 '16

Small irrigation canals lined with concrete to prevent seepage water loss. C. E. Edwards. il Eng Rec 73:508-10, 539-41 Ap 15-22 '16

Tunnel-concreting methods. L. G. Warren. il Eng N 76:794-5 O 26 '16

Tunnel construction for the Northern hospital for the insane at Sedro-Woolley, Wn. L. R. Coombs. il Concrete 9:128-9 O '16

Tunnel grouting in Brooklyn end of Catskill aqueduct. O. W. Myers. il diags Eng N 76:196-200 Ag 3 '16

Tunnel lining by compressed air mixing and placing. il diags Eng & Contr 45:29-34 Ja 12 '16

Tunnel muck turned into concrete lining immediately behind heading. il diags Eng Rec 73:568-70 Ap 29 '16

Wall-plate drift method used for the most part in Twin Peaks tunnel, San Francisco. il diags Eng Rec 73:272-4 F 26 '16

Wilson avenue intake tunnel, Chicago. F. H. Bernhard. il diags Munic J 40:787-90 Je 8 '16

See also Concrete placing

Concrete mixers

City engineer designs paying-grout mixer. il Eng Rec 74:651 N 25 '16

Dunn concrete mixer with large tilting drum. il Munic J 40:734 My 25 '16

Economy of the concrete mixer. H. C. Campbell. il Bldg Age 38:31-2 F '16

Five-foot roadster concrete mixer valuable on country roads. il Concrete 8:93 F '16

Grand slush mixer. il Munic J 41:464 O 12 '16

Gravity concrete mixer with spouting system. diag Concrete Cem 7:221 D '15; Eng & Contr 45:68 Ja 19 '16

Hand operated concrete mixers for small jobs. il Ry Age 60:121 Ja 21 '16

Knickerbocker mixers. il Munic J 40:631-2 My 4 '16

Koehring mixers. il Munic J 40:451 Mr 30 '16

Large tilting Smith concrete mixer. il Iron Age 97:899 Ap 13 '16; Eng N 75:676 Ap 6 '16; Concrete 8:190 Ap '16

Minster batch mixer. il Munic J 40:384 Mr 16 '16

Mixers mounted on street wall speed up foundation work. il Eng Rec 74:601 N 11 '16

Northwestern 5-foot mixer. il Concrete 8:190 Ap '16

Pneumatic concrete mixing machine. il Eng & Contr 46:287-8 S 27 '16

Pneumatic concreting and its development. J. H. Graham. il diag Eng N 76:387 Ag 31 '16

Pneumatic mixer moved as lining progressed in long tunnel. il Eng Rec 73:334 Mr 4 '16

Portable mixers supplement distributing towers. il Eng & Contr 46:374 O 25 '16

Radical departure in mixers and conveyors. il Munic Eng 51:166 O '16

Simplex concrete mixers. il Munic J 40:350-1 Mr 9 '16

Trolley-car concrete mixer for street-railway track, Birmingham, Ala. il Eng N 75:276 F 10 '16

Concrete mixing

Amount of water to use in concrete. E. McCullough. Sci Am S 82:115 Ag 19 '16

Angle for concrete chute suggested by committee. Eng Rec 73:349 Mr 11 '16

Cement measuring device for varying concrete proportions. W. D. Jones. diag Eng & Contr 46:78 Jl 26 '16

Effect of duration of mixing period on quality of concrete. E. McCullough. Eng & Contr 45:382 Ap 26 '16

Materials vs. methods—testimony of moving pictures in the study of concrete. N. C. Johnson. il Eng Rec 72:684-7 D 4 '15

Measuring concrete aggregate in revolving boxes. H. B. Andrews. il Eng N 75:996 My 25 '16

Measuring concrete materials in boxes that dump into wheelbarrows. diag Eng & Contr 46:373 O 25 '16

Proportions of materials and consistency of concrete; committee report. Concrete 8:108-9 Mr '16

Tunnel lining by compressed air mixing and placing. il diags Eng & Contr 45:29-34 Ja 12 '16

See also Concrete—Aggregate; Concrete mixers

Concrete patents. See Concrete, Reinforced—Patents

Concrete pavements. See Pavements, Concrete

Concrete piling

Banding concrete pile tops to prevent spalling. diag Eng & Contr 45:405 My 3 '16

Concrete highway trestle across Yolo bypass. il diags map Eng N 75:358-62 F 24 '16

Concrete piles in salt water. F. J. Springer. il Sci Am 115:147+ Ag 12 '16

Concrete piles 100 ft. long. F. E. Powell. il diag Eng N 75:1177-8 Je 22 '16

Concrete sheet piles; waterfront construction at Dines sur Mer. il Sci Am 115:255 S 16 '16

Concreting piles with a tremie. R. N. Maxwell. Eng N 75:614 Mr 30 '16

Driving 106-foot concrete piles in San Francisco piers. il Eng Rec 72:761 D 18 '15

Methods and cost of making and sinking pre-moulded concrete piles. G. K. Leonard. diag Eng & Contr 46:80-1 Jl 26 '16

New concrete pile driven from the point. C. S. Howell. il diags Eng N 75:406-7 Mr 2 '16

Procedure in testing concrete piles. H. Abbott. il Concrete 8:178-9 Ap '16

Test of concrete piles at Long Island City. il Concrete 8:54 F '16

Concrete pipes. See Pipes, Concrete

Concrete placing

All-concrete stopper for tremies. diag Eng & Contr 45:180 F 23 '16

Concrete placing—Continued

- Angle for concrete chute suggested by committee. Eng Rec 73:349 Mr 11 '16
- Automatic chute from concrete mixer to bucket. C. B. Chace. diag Eng & Contr 46:77 J1 26 '16
- Battery of bins and traveling mixer save extra derrick barge. A. J. Rife. il Eng Rec 73:717 My 27 '16
- Concrete in dry open caisson deposited by tremie. diags Eng N 76:172-3 J1 27 '16
- Concreting with dump car and inclined tower. il Eng N 76:174 J1 27 '16
- Conveying and applying concrete by steam. il Sci Am 114:379- Ap 8 '16
- Distributing concrete on subway work. H. L. Quigley. il diag Concrete 8:60 F '16
- Equipment of concreting trains. il diags Eng N 74:1275-6 D 30 '15
- Handling concrete in building operations. il diag Sci Am S 81:164 Mr 11 '16
- Hints on the use of the tremie. C. E. Chase. Eng N 74:1167 D 16 '15
- Inclination of conveying chutes for concrete. F. H. Higbee. Eng & Contr 45:589 Je 28 '16
- Large volume of concrete handled in small batches at Halifax ocean terminals. il diags plan Eng Rec 73:143-6 Ja 29 '16
- Lining the Wilson avenue water supply tunnel at Chicago by pneumatic mixing and placing. il Eng & Contr 45:502-3 My 31 '16
- Machine for placing concrete lining in canals. E. I. Davis. il Eng N 75:264-7 F 10 '16
- Minimum slopes for concrete chutes. S. E. Thompson. Eng & Contr 44:452 D 8 '15
- Minimum slopes for concrete chutes. W. H. Insley. Eng & Contr 45:34-5 Ja 12 '16
- Mixing and placing concrete; committee report. diags Concrete 8:161-3 Ap '16
- Motor trucks distribute materials within the job. il plan Eng Rec 74:347-9 S 16 '16
- Moving pictures show need for better practice in delivering concrete to forms. N. C. Johnson. il Eng Rec 72:717-20 D 11 '15
- New features in concrete spouting plant for the Field museum, Chicago. il diags plan Eng N 75:31-3 Ja 6 '16
- Placing concrete lining in tunnels by compressed air. il diag Engineer 122:354-5 O 20 '16
- Pneumatic concrete mixing and placing. New York subway. A. E. Comstock. il Eng N 75:496-7 Mr 16 '16
- Pneumatic concreting and its development. J. H. Graham. il diag Eng N 76:386-7 Ag 31 '16
- Pneumatic placing saves space in concreting retaining wall. D. S. Studdiford. Eng Rec 74:181 Ag 5 '16
- Proper use of concrete gravity chutes. W. H. Insley. il Munic Eng 50:102-3 Mr '16
- Proper use of concrete gravity chutes. W. H. Insley and C. C. Brown. Ry Age 60:505 Mr 17 '16
- Recent methods of transmitting concrete; use of compressed air for both mixing and transmitting. J. F. Springer. il Munic J 40: 859-61, 895-6 Je 22-29 '16
- Reservoir that will float; a German solution of the difficulties of subaqueous concrete work. J. F. Springer. il Sci Am 115:491 D 2 '16
- Segregation and entrained air weaken concrete dropped from height into forms. N. C. Johnson. il Eng Rec 72:755-8 D 18 '15
- Spouting or chuting? Eng N 75:1100 Je 8 '16
- Traveling elevator dumps buggies into form above runaway. H. V. Knouse. il Eng Rec 73:28 Ja 1 '16
- Tremie plant for concreting subaqueous pedestals. K. Smith. diags Eng N 75:1186-7 Je 22 '16; Same. Eng & Contr 46:86-7 J1 26 '16
- Tunnel lining by compressed air mixing and placing. il diags Eng & Contr 45:29-34 Ja 12 '16
- Up-to-date method of pouring concrete. Sci Am 115:368 O 21 '16
- Wet concrete successfully dropped 660 feet into tunnel cars. G. J. F. Carey. diags Eng Rec 74:601-2 N 11 '16
- Wheeled spout aids concreting of levee slopes. il Eng Rec 73:123 Ja 22 '16

See also Concrete lining; Concrete plants

Concrete plants

- Belt conveyor deposits wet concrete into sewer forms. il Eng Rec 74:571 N 4 '16
- Boom mixing plant big enough to build concrete houses. R. C. Hardman. il Eng Rec 73:365-6 Mr 11 '16
- Bucket conveyors feed mixer. il Eng N 76: 1035 N 30 '16
- Building concrete piers for Sciotoville bridge. il plan Eng N 75:418-19 Mr 2 '16
- Central concrete-mixing plant tried at Baltimore. G. Y. Carpenter. il Eng N 76:268-9 Ag 10 '16
- Concrete plant and methods used in constructing Hotel Traymore, Atlantic City, N. J. plan Eng & Contr 45:14-15 Ja 5 '16
- Concrete plant handled on four freight cars at Hammond, Ind. plan Eng N 75:1238 Je 29 '16
- Concrete road-building methods yield profits in cash instead of in plant. H. E. Breed. il plan Eng Rec 73:202-4 F 12 '16
- Concrete shaft lining: development of form handling and concrete placing methods. diags Eng & Contr 45:144-50 F 9 '16
- Concrete tower erected within armory drill hall. il Eng Rec 73:293 F 26 '16
- Concreting plant for construction of Rosalia, Wash., bridges of C. M. & St. P. Ry. plan Eng & Contr 46:455-6 N 22 '16
- Concreting plant for Halifax ocean-terminal work. il diags plan Eng N 75:249-53 F 10 '16
- Construction features used by concrete building firm, Ferro concrete construction company. il Eng N 76:991-3 N 23 '16
- Contractors' methods on Welland ship canal work present interesting variations. il plan Eng Rec 74:490-4 O 21 '16
- Developments in operation of factory making structural tile. H. Whipple. il diags Concrete 8:269-72 Je '16
- Floating concrete plant at dam no. 39, Ohio river. F. C. Todd. il plans Eng N 75:661-3 Ap 6 '16
- Improved arrangement doubles production of concrete-casting plant. il plan Eng Rec 74: 164-5 Ag 5 '16
- Ingenious devices and methods used on the construction of a reinforced concrete feed mill. il diag Concrete 9:148-9 N '16
- Interesting concrete plants illustrate modern methods. il diags Eng Rec 74:17-9 Ag 12 '16
- Jacketing a railway tunnel by mining methods. diags Eng N 76:254-6 Ag 10 '16
- Little plant required to complete 4000-foot concrete railroad bridge at Harrisburg, Pa. il diag Eng Rec 74:340-2 S 16 '16
- Material handling plant for difficult construction conditions. il Eng & Contr 46:458 N 22 '16
- Materials chuted through drill holes to mixer in tunnel. W. W. Horner. il diags Eng N 76:705-6 O 12 '16
- Methods and cost of constructing a reinforced concrete building. E. W. Robinson. il diags plan Concrete 8:47-50 F '16
- Methods and cost of constructing a reinforced concrete storehouse. E. R. Gayles. il diags Eng & Contr 46:172 Ag 23 '16
- Methods and equipment used in constructing a reinforced concrete viaduct at Danville, Ill. N. E. Garver. il diag Eng & Contr 45:134-5 F 9 '16
- Methods and equipment used in constructing the Methodist book concern building, Cincinnati, O. il diags Eng & Contr 45:433-4 My 10 '16
- Mixer supplies three jobs; gasoline dinky haulage. H. B. Watters. il Eng N 74:1131-2 D 9 '15
- Mixer train handles gravel from hopper cars on belt conveyors. W. A. Kellner. il Eng Rec 74:421-2 S 30 '16
- Mounting of mixer lowers the cost on tank foundation and wall. C. Bentall. il Eng Rec 73:189 F 5 '16
- New features in concrete spouting plant for the Field museum, Chicago. il diags plan Eng N 75:31-3 Ja 6 '16
- Novel construction features of Cincinnati concrete bridge. E. K. Ruth. il Eng N 75:659-61 Ap 6 '16

Concrete plants—Continued

- On the contractor's end of the Yadkin development. *il* diags plan Eng N 76:922-4 N 16 '16
- Placing foundations for coke plant near New York. *il* Eng N 76:688-90 O 12 '16
- Pneumatic mixer lines railway tunnel under bridge. *il* diag Eng N 76:936-8 N 16 '16
- Portable concrete plant builds Louisville and Portland canal wall. *il* diag map Eng Rec 73:522-4 Ap 15 '16
- Portable towers save large spouting installation on viaduct. R. C. Hardman. *diag* Eng Rec 73:781 Je 10 '16
- Proper plant arrangement turns failure to success. *il* Concrete 9:147 N '16
- Railroad's car-float mixing-plant mounts locomotive crane. L. A. Francisco. *plan* Eng Rec 73:27 Ja 1 '16
- Relining a leaky reservoir at Omaha, Neb. *il* diag Eng N 76:646-7 O 5 '16
- Run of 1200 yards in twenty hours made with conveyor system for concrete aggregates. *il* Eng Rec 74:567 N 4 '16
- Screening and concrete plants for building use gravel from cellar excavation; building of Methodist book concern, Cincinnati, Ohio. W. R. Howard. *il* diags Eng Rec 73:483-4 Ap 8 '16
- Special plant layout expedites construction of Brooklyn-Brighton viaduct. *il* plan Eng Rec 74:11-12 Jl 1 '16
- Three dams of power project involve interesting design and construction. E. Lauchli. *il* diags Concrete 8:56-60 F '16
- Tower and derrick on same boat in concrete plant for bridge. A. Frederickson. *il* Eng Rec 74:58 Jl 8 '16
- Two Ohio river dams built in two seasons. *il* plans Eng Rec 73:360-3 Mr 11 '16
- Unique tremie float and driver rigged as derrick used by navy. K. Smith. *diag* Eng Rec 74:451 O 7 '16
- Wabash grade elimination in Fort Wayne. *il* Eng N 76:241-2 Ag 10 '16
- Well-balanced mixing plants pour dense concrete from high towers on long highway bridge. *il* diags Eng Rec 73:632-4 My 13 '16
- Well points supply mixer water in small concrete plant. *il* Eng Rec 74:662 N 25 '16
- Wheeled mixing plant and travelers build sewer rapidly. E. Novak. *il* Eng Rec 73:261-2 F 19 '16
- Concrete posts.** See Fence posts, Concrete; Lamp posts, Concrete
- Concrete products**
How-they-do-it details from the concrete products field. H. Whipple. *il* diags Concrete 8:67-75 F '16
- Reputation, costs and profits in products manufacture. E. S. Hanson. Concrete 9:53-4 Ag '16
- See also* Concrete blocks; Concrete plants
- Concrete protection.** See Concrete—Protection
- Concrete railings.** See Railings, Concrete
- Concrete railroad ties.** See Railroad ties, Concrete
- Concrete reservoirs.** See Reservoirs, Concrete
- Concrete retaining walls.** See Retaining walls, Concrete
- Concrete road building, National conference on.** See National conference on concrete road building
- Concrete roads.** See Roads, Concrete
- Concrete sewers.** See Sewers, Concrete
- Concrete sidewalks.** See Sidewalks, Concrete
- Concrete silos.** See Silos, Concrete
- Concrete slabs**
Analysis and tests held to show advantages of new flat-slab reinforcement. E. Smulski. *diags* Eng Rec 73:217-19, 247-50 F 12-19 '16
- Canopies at Denver station are of present units. *il* Eng Rec 74:447-8 O 7 '16
- Careful design needed for wall-bearing flat slabs. A. M. Wolf; C. Von Mueller. Eng N 76:614-15 S 28 '16
- Chicago track-elevation bridges of Illinois Central R. R. *diags* Eng N 75:600-3 Mr 30 '16

- Concrete highway trestle across Yolo bypass. *il* diags map Eng N 75:358-62 F 24 '16
- Concrete slabs used at railroad crossings. *diag* Eng Rec 73:350 Mr 11 '16
- Creeping and heaving of concrete road slabs. E. A. Trego. Eng N 76:369 Ag 24 '16
- Creeping and heaving of concrete road slabs. F. W. Sampson. Eng N 76:133-4 Jl 20 '16
- Economical method of making concrete slabs for bridges. J. C. Worrell. Eng & Contr 46:84 Jl 26 '16
- Experimental concrete revetment proves feasible and economical. E. M. Markham. *il* Eng Rec 74:614-15 N 18 '16
- Failure of Roxbury school building apparently caused by faulty brick piers; abstracts. S. E. Thompson. *il* Eng Rec 74:294-6 S 2 '16; Concrete 9:116-17 O '16; Eng N 76:262-5 Ag 10 '16
- Flat slab used at Lackawanna South Orange crossing. *il* diags plan Eng N 75:526-9 Mr 16 '16
- High stresses in flat slabs. E. Godfrey. Eng Rec 73:714 My 27 '16
- Holding-down device for concrete slabs. *diag* Concrete Cem 7:205 D '15
- Longest span slab used in Chicago hospital. J. N. Jensen. *il* plan Eng Rec 74:233 Ag 19 '16
- Slab design to use less concrete is verified by experiments. R. B. Melvin. *il* diags Concrete Cem 7:208-10 D '15
- Stresses in concrete beams and slabs. *diags* Concrete 8:138-9 Mr '16
- Study of effective width of reinforced concrete slabs. A. T. Goldbeck and E. B. Smith. Eng & Contr 46:87-8 J 26 '16
- Thickness of flat slab floors. H. T. Eddy. Eng & Contr 46:88-90 Jl 26 '16
- Using household spring scale to magnify deflections. *diag* Eng N 75:126 Ja 20 '16

Testing

- Analysis and tests held to show advantages of new flat-slab reinforcement. E. Smulski. *il* diags Eng Rec 73:247-50 F 19 '16
- Many unbiased flat-slab tests. A. R. Lord. Eng N 76:85 Jl 13 '16
- Pittsburgh flat-slab ruling and the Seattle test. E. Godfrey; J. A. Ferguson. Eng N 75:1244-5 Je 29 '16
- Seattle flat-slab floor test. C. A. P. Turner. Eng N 76:84-5 Jl 13 '16
- Test of concrete floor I-beam road bridge, Minnesota standards. *diag* Eng & Contr 46:181-2 Ag 23 '16
- Test of mushroom flat slab. Eng Rec 73:778-9 Je 10 '16
- Test of mushroom flat slab in Seattle warehouse shows high local stresses. D. E. Hooker. *il* diags Eng Rec 73:647-9 My 13 '16
- Tests of reinforced concrete flat slab structures. A. N. Talbot and W. A. Slater. *il* diags Ill U Eng Exp Sta Bul 84:1-128 '16
- Tests to determine the effective width of large concrete bridge slabs. A. T. Goldbeck and E. B. Smith. Eng & Contr 45:447-9 My 17 '16; Same cond. Eng Rec 73:282 F 26 '16; Excerpts. Eng N 75:387 F 24 '16
- Tests to determine the load distribution through reinforced concrete slabs. *diags* Eng & Contr 44:490-2 D 29 '15
- Concrete stables.** See Stables, Concrete
- Concrete stairways.** See Stairways, Concrete
- Concrete standpipes.** See Standpipes, Concrete
- Concrete stone**
Concrete stone manufacture by the New England stone co. Concrete 9:65-6 Ag '16
- Concrete stone, with brushed-out surface used in military academy building. C. W. Alger. *il* Concrete 9:41-4 Ag '16
- New process in concrete stone manufacture. *il* Concrete 8:142 Mr '16
- Successful concrete brick and cast stone plant. *il* diags Concrete 9:83-4 S '16
- Concrete surfaces.** See Concrete—Finishing
- Concrete tanks.** See Tanks, Concrete
- Concrete testing.** See Concrete—Testing; Concrete, Reinforced—Testing
- Concrete ties.** See Railroad ties, Concrete

Concrete tile

Developments in operation of factory making structural tile. H. Whipple. *il* diags Concrete 8:269-72 Je '16

Million square feet of cement tile used for roofing. *il* diags Eng N 76:154-5 Jl 27 '16

Concrete tracks

Concrete tracks proposed for an earth road. *diag* Eng N 76:469 S 7 '16

Concrete trestles. See Trestles, Concrete**Concrete walls.** See Walls, Concrete**Concrete water towers.** See Water towers, Concrete**Concreting trains.** See Concrete placing**Condemnation of land**

Compensation in kind involved in Hartford water case. C. M. Saville. *Eng* N 76:246-7 Ag 10 '16

Excess condemnation and city planning. C. K. Mosler. *il* diags Eng N 76:20-2 Jl 6 '16

Condensed milk. See Milk, Condensed**Condensers, Ammonia.** See Ammonia condensers**Condensers (electricity)**

Modern methods of correcting power factor. *il* diags Engineer 121:197-S, 549-50 Je 16, 30 '16

Precision condensers. *il* Elec W 68:1092 D 2 '16

Condensers (steam)

Action of air in surface condensers. C. F. Hirshfeld. *Power* 43:291-4 F 29 '16

Action of air in surface condensers. P. A. Bancel. *diags* Power 43:834-6 Je 13 '16

Air leak in condenser system. F. L. Ray. *diag* Power 42:799 D 7 '15

Barometric condenser as an open water heater. D. P. Morrison. *diags* Ry Age (Mech ed) 89:634 D '15

Barometric condenser drain. H. R. Bissell. *diag* Coal Age 8:841-2 N 20 '15

Beyer barometric condenser. *il* Coal Age 10: 73-4 J 8 '16; *Elec* Ry J 48:110 Jl 15 '16; *Iron* Age 98:21 Jl 6 '16; *Met & Chem* Eng 15:105 Jl 15 '16; *Ry Mech* Eng 90:373-4 Jl '16; *Eng & Min* J 102:594 S 30 '16; *Power* 44: 382 S 12 '16

Calculations show air leaks in condenser. H. B. Smith. *Power* 43:376 Mr 14 '16

Cannot increase the vacuum. *Power* 42:797; 43:54 D 7 '15, Ja 11 '16

Cleaning condenser tubes. C. F. Hirshfeld. *diags* Power 43:690-2 My 16 '16

Cleaning condenser tubes. F. W. Wearin. *diag* Power 43:262 F 22 '16

Condenser tube troubles. A. E. White. *Iron* Age 98:22-3 Jl 6 '16; *Abstract*. *Am Soc M E J* 38:618 Ag '16; *Abstract* (Cracking of brass tubes and its cure). *Eng* N 76:87 Jl 13 '16

Corrosion of condenser tubes; report of committee of the Institute of metals. *Met & Chem* Eng 14:566-8 My 15 '16

Cumberland method of preventing corrosion. E. Cumberland. *diags* Power 44:184-5 Ag 1 '16

Effect of air leakage on condenser efficiency. *Elec* W 68:84 Jl 8 '16

Factors that influence the selection of a condenser. H. J. Macintire. *Power* 44:343-5 S 5 '16

How condenser-tube expense can be reduced. F. M. Wilbraham. *diag* Elec W 68:1008 N 18 '16

Hunting for leaks in surface condensers; abstract. Otte. *Am Soc M E J* 38:190-1 F '16

Multiple-jet ejector condenser. *diags* Engineer 122:38-9 Jl 14 '16

N. E. L. A. report of committee on prime movers. *Elec* Ry J 47:999 My 27 '16

Notes on surface condensers. A. B. Clark. *Power* 43:137-9, 666 Mr 28, My 9 '16

Performance and design of high vacuum surface condensers. G. H. Gibson and P. A. Bancel. *diags* *Am Soc M E J* 38:23-7 Ja '16; *Abstract*. *Power* 42:880-1 D 21 '15; *Discussion*. *Am Soc M E J* 38:144-6 F '16

Prevention of condenser corrosion; abstract. J. F. Peter. *Elec* W 68:725 O 7 '16

Priming rotary condenser pump without use of steam ejector at Dowagiac, Mich. *diag* Elec W 68:85 Jl 8 '16

Proportioning of surface condensers. G. A. Orrok. *Am Soc M E J* 38:864-6 N '16

Successful improvised condenser. *il* Locomotive 31:80-3 Jl '16

Surface condenser charts, giving inside diameter of shell and number of tubes for various amounts of cooling surface. *Power* 44:300 Ag 29 '16

Tests of a large surface condenser. *diag* Engineer 122:399 N 3 '16

Tom Hunter, hoisting engineer. W. O. Rogers. *il* *diag* Power 43:326-8 Mr 7 '16

Water-works and water-tube types of condensers. L. A. Quayle. *Power* 43:921 Je 27 '16

Water-works and water-tube types of condensers. P. A. Bancel. *Power* 44:358 S 5 '16

Water-works type condensers compared with water-tube. P. A. Bancel. *diags* Power 43: 739-40 My 23 '16

See also Steam engines; Steam plants

Condensers (vapors and gases)

Comparison of the relative efficiency of laboratory reflux condensers. M. V. Dover and J. W. Marden. *J Ind & Eng Chem* 8:834-6 S '16

Condiments. See Spices**Conduct of life.** See Engineering ethics; Professional ethics; Success**Conductivity, Electric.** See Electric conductivity**Conductors, Electric.** See Electric conductors**Conduits**

Method of recessing duct entrances into concrete manholes. *diag* Elec W 68:84 Jl 8 '16

Recent improvements in the transmission of steam through underground conduits. *il* Sci Am 114:558+ My 27 '16

See also Aqueducts; Electric conduits; Subways (conduits); Water conduits

Conduits, Electric. See Electric conduits**Conduits (subways).** See Subways (conduits)**Conduits, Water.** See Water conduits**Conference board of physicians in industrial practice**

Physician in industry. M. W. Alexander. *Am Ind* 16:15-17 Ap '16; *Same*. *Iron Tr R* 59: 777-9 O 19 '16; *Same* *abr*. *Am Gas Light J* 104:194-5 Mr 27 '16

Coniferae

Conifer leaf oil industry. A. W. Schorger. *il* *Met & Chem* Eng 14:515-18 My 1 '16

Ground-wood pulp; with samples of papers. J. H. Thickens and G. C. McNaughton. *il* maps U S Agric Bul 343:1-151 '16

Oils of the coniferae: the leaf and twig, and bark oils of incense cedar. A. W. Schorger. *J Ind & Eng Chem* 8:22-4 Ja '16

Connecticut

Colonial architecture in Connecticut. W. S. Bessell. *il* Arch Rec 37:360-9, 445-52, 547-56; 38:672-80; 39:53-64 Ap-Je, D '15-Ja '16

Conservation of ore. See Ore conservation**Conservation of resources**

Conservation and economic theory. R. T. Ely. *Am Inst Min E Bul* 110:211-26 F '16; *Same* *cond*. *Iron Tr R* 59:998-1001 N 16 '16

Conservation of mineral resources. H. M. Chance. *Eng & Min* J 100:913-14 D 4 '15

Conservation of the oil and gas resources of the Americas. R. Arnold. *Econ Geol* 11:299-326 Je '16

Erosion of watersheds and its prevention. B. Brooks. *Am Water Works Assn J* 3:409-14 Je '16

Improved mining and metallurgy an aid to conservation. L. D. Ricketts. *Eng & Min* J 101:291-2 F 12 '16

Moral element of conservation. C. W. Elliot. *Am For* 22:165-6 Mr '16

See also Forest conservation; Gas, Natural; Mines and mineral resources; Reclamation service (United States); Water power

Consolidated gas company, New York

Annual report year ending December 31, 1915. *Am Gas Light J* 104:75 Ja 31 '16

Construction. See Architecture; Building; Engineering

Construction camps

Accounting and business procedure as applied to the construction of large irrigation projects. C: E. Bee. Eng & Contr 45:269-74 Mr 22 '16

Camping instructions and outfit required for construction crews. W. H. Meier. Eng & Contr 45:516-18 Je 7 '16

Competition on housing railway construction gangs. Ry R 58:535-6 Ap 15 '16

Construction methods and costs, Sacramento valley irrigation project. P. A. Welty. Eng & Contr 44:420-1 D 1 '15

Excellent results from model convict camp. il Eng Rec 73:840 Je 24 '16

Housing extra gangs, Buffalo, Rochester & Pittsburgh Ry. il Ry R 59:560-1 O 21 '16

Portable shacks for small contract work. J. C. Worrell. Eng & Contr 45:473 My 24 '16

"Wop" in the track gang. D. T. Ciolli. Ry R 59:373-5 S 16 '16; Discussion. 59:559 O 21 '16

See also Mining camps

Consular service

Consular service. E. E. Pratt. Mach 22:795 My '16

Desirable additions to our consular service. Am Ind 17:31-2 N '16

Export trade suggestions. U S Bur For & Dom Com misc ser 35:77-88 '16

Consulting engineers, American institute of. See American institute of consulting engineers**Continued fractions. See Fractions, Continued****Contract labor**

See also Day labor

Contract letting. See Contracts, Letting of**Contractors**

Accounting for the contractor. B: L. Lathrop. Eng Rec 73:685, 717-18, 750, 811, 843; 74:25-6, 57-8, 89-90, 119-20 My 20-Je 3, 17-Jl 22 '16

Bids, bidders and bidding. G. A. Wright. Arch & Bldg 48:145-6 S '16

Contractors' accounts. T. E. Ross. J Account 21:161-6 Mr '16

Engineers and contractors are vital factors in plans for military preparedness. L. Wood. Eng Rec 72:739-40 D 11 '15

Equitable specifications and contracts. H. F. Hackedorn. Assn Eng Soc J 55:198-211 D '15; Same cond. Am Soc M E J 38:388-90 My '16; Discussion. Assn Eng Soc J 55:211-19 D '15

Field-office accounting; finding costs. B: L. Lathrop. Eng Rec 74:211 Ag 12 '16

Justice to the contractor. Eng Rec 73:619 My 6 '16

Justice to the contractor. H. G. Shirley. Eng Rec 74:180 Ag 5 '16

Justice to the contractor. J. L. Harrison. Eng Rec 74:331 S 9 '16

Justice to the contractor. J. T. Carmichael. Eng Rec 74:509-10 O 21 '16

Justice to the contractor and the engineer. A. M. Wolf. Eng Rec 74:359-60 S 16 '16

Labor cost-keeping system for concrete bridge work. R. A. Small. Eng & Contr 45:142-3 F 9 '16

Making a contractor's costs and bids agree. H. A. Harris. Metal Work 86:313-15, 407-9+, 467-9 S 8, 29, O 13 '16

Method of keeping graphic cost-progress record on sewer construction. W. A. Bennett. Eng & Contr 45:64-5 Ja 19 '16

Office methods for a small contracting business. C. M. Cobb. Eng & Contr 45:317-21 Ap 5 '16

Reasonable profit for the contractor. G. W. Hill. Dom Eng 76:59 Jl 8 '16

Relation between engineers and contractors. J. W. Rollins. Eng Soc W Pa 32:121-46; Discussion. 146-85 Mr '16

See also Contracts; Day labor; Electric contractors

Contractors' camps. See Construction camps**Contracts**

Bonus and penalty clauses. F. H. Low. Power 43:199-200 F 8 '16

Contractual relations in recent litigation. Textile World 51:1286 Mr 4 '16

Do engineers need standard contract forms backed by national societies? Eng Rec 73: 699-701 My 27 '16

Equitable specifications and contracts. H. F. Hackedorn. Assn Eng Soc J 55:198-211 D '15; Same cond. Eng Rec 73:75-6 Ja 15 '16; Same cond. Am Soc M E J 38:388-90 My '16; Discussion. Assn Eng Soc J 55:211-19 D '15

Girardville, Pa., water supply contract a model of one-sidedness. Eng & Contr 44:467 D 15 '15

Inaccurate estimate vitiates time-penalty clause. Eng N 76:53 Jl 13 '16

Individual contract in Indianapolis. Elec Ry J 48:679-81 S 30 '16

Objectable clauses in contracts. J. W. Rollins. Eng & Contr 45:590 Je 23 '16

Old and new views of contracts in restraint of trade or not to re-engage in same business. Dom Eng 75:36 Ap 8 '16

Presumption as to knowing the legal effect of contracts. Dom Eng 76:397 S 16 '16

Preventing competitors from stealing employees. E. J. Buckley. Metal Work 85:678 My 19 '16

Terms of Salem electric company's contract with large mill customer. Elec W 63:675-6 S 30 '16

What the law decides; requirements in contracts by correspondence, offers and acceptances. Dom Eng 74:100 Ja 22 '16

When a contract is binding, despite the use of a printed clause on business stationery. Heat & Ven 13:40-1 Mr '16

Where is the payment coming from? R. B. Shapinsky. Dom Eng 74:233-4 F 19 '16

Why contracts should be in writing, clear and complete. Dom Eng 77:216 N 18 '16

See also Bridge contracts; Building contracts; Contractors; Debt; Guaranties and sureties; Heating contracts; Pavements—Contracts; Plumbing contracts; Roads—Contracts; Sales; Street lighting—Contracts

Contracts, Letting of

Alternate specifications for public work. C. D. Hill. Eng N 74:1188-9 D 16 '15

How to establish reasonable competition in awarding of plumbing and heating contracts. H. W. Nelson. Dom Eng 76:92-5 Jl 15 '16

160 to 1 shot. H. W. Nelson. Dom Eng 76:60-3 Jl 8 '16

Relations between the architect and the master steam fitter. D. K. Boyd. Heat & Ven 13: 28-33 Ag '16

Control boards. See Planning boards**Controllers, Electric. See Electric controllers****Conversion tables, Metric. See Metric system****Converters**

Basic-lined converter in the Southwest. L. O. Howard. Am Inst Min E Bul 117:1539-43 S '16; Same cond. Eng & Min J 102:643-4 O 7 '16; Discussion. Am Inst Min E Bul 120:2145-7 D '16

How to operate side-blow converters. H. W. Gilbert. Foundry 44:143-4 Ap '16

Lifting a 210-ton converter. E. E. Thum. il diag Eng & Min J 101:396-7 F 26 '16

Place of the basic Bessemer process. H. H. Campbell. Iron Age 98:691-3 S 28 '16

Safety first for the side-blow converter. F. West. il Foundry 44:92 Mr '16

See also Foundry practice

Converters, Rotary. See Rotary converters**Converters, Synchronous. See Rotary converters****Conveying machinery**

Belt-conveyor operating data. J: D. Morgan. Power 44:490-2 O 3 '16

Belt conveyors a success in pneumatic tunnel construction at Boston. il Eng Rec 73:136-7 Ja 29 '16

Chain belt pickling conveyor. il Mach 22:722-3 Ap '16; Iron Tr R 59:226 Ag 3 '16

Cheap and effective coke conveyor. L. W. Allison. Gas Age 38:188 Ag 15 '16

Chilled conveyor idlers. il diag Eng & Min J 102:646, 832 O 7, N 4 '16

Coal-face conveyors employed in the United Kingdom. S. F. Walker. il diag Coal Age 10:744-8, 790-4 N 4-11 '16

Conveying of products from a press. il Iron Age 97:1007 Ap 27 '16

Conveying machinery—Continued

Conveyor-belt calculating chart. J. D. Mooney and D. L. Darnell. *Am Inst Min E Bul* 105: 1937-9 S '15; Same. *Eng & Min J* 100:562-3 O 2 '15; Same. *Met & Chem Eng* 13:818-19 N 1 '15; Same. *Iron Tr R* 57:1231 D 23 '15; Abstract. *Am Soc M E J* 37:610-11 O '15; Excerpts. *Eng & Contr* 44:481 D 22 '15

Conveyor for handling tank heads. *Iron Tr R* 59:271 Ag 10 '16

Conveyor saves eleven minutes per assembly. *il Automobile* 34:219 F 3 '16

Conveyor system aids big production. L. V. Spencer. *il diag Automobile* 35:100-4 J1 20 '16

Conveyors for discharging bulk cargoes from steamers. *il plan Engineer* 120:622 D 31 '15

Correcting trouble on a conveyor. R. A. Langworthy. *diag Power* 43:668 My 9 '16

Economics of material handling in manufacturing plants. R. Trautscold. *il Eng M* 51: 734-46; 52:231-48 Ag, N '16

Efficient handling of screw parts. H. C. Spillman. *il Iron Age* 97:1431-3 Je 15 '16

Handling materials in manufacturing plants. E. L. Streeter. *il diags Eng M* 50:546-71; 51: 226-56 Ja, My '16

Home-made conveyor for backfilling retaining wall. W. F. Schaphorst. *il Eng & Contr* 46:150 Ag 16 '16

Horsepower and capacity of spiral conveyor. *diag Coal Age* 9:770 Ap 29 '16

Long log and block conveyor at Hinckley dam. S. Reswick. *il diag Eng N* 75:552-3 Mr 23 '16

Mail conveyor for government printed matter. W. R. Metz. *plan Power* 43:149-50 F 1 '16

Mathews gravity carrier. C. Roehl. *il diag Munic Eng* 51:32-3 J1 '16

Nomographic charts for conveyor belt calculations. H. E. Haylett. *Met & Chem Eng* 14:8-9 Ja 1 '16

Portable coke loader. L. R. W. Allison. *il Coal Age* 10:20-1 J1 1 '16

Portable conveying machines. *il Iron Age* 98: 455 Ag 31 '16

Railroad coaling pier to have belt conveyors. *diags Eng N* 75:656-7 Ap 6 '16

Sand sluiced around Field museum columns, Chicago, holds them for more fill by conveyors. *il diags Eng Rec* 74:250-2 Ag 26 '16

Test of motor-driven coal-conveyor system. L. A. Quayle. *il Power* 43:321-2 Mr 7 '16

Unloading pig iron with a gravity carrier. *il Foundry* 44:123-4 Mr '16; Same. *Iron Tr R* 58:930 Ap 27 '16

Use of belt conveyors. A. Robertson and A. M. Johnston. *diags Eng & Min J* 102:9-16 J1 1 '16

Utilizing tunnel spoil for concrete lining without removal from tunnel. *diags Eng & Contr* 46:157 Ag 16 '16

See also Ash handling; Buckets; Cables; Cranes, derricks, etc.; Electric shovels; Freight handling; Grain handling; Hoisting machinery; Loading and unloading; Mechanical handling; Mine haulage; Mine hoisting; Ore handling; Pneumatic tubes; Telferage; Trucks

Conveyor belts. *See* Belts, Conveyor

Conveyors. *See* Conveying machinery

Convict labor

Convict labor for highway work. G. P. Coleman. *Good Roads n s* 10:208-10 O 2 '15; Excerpt (Convict road construction in Virginia). *Eng & Contr* 44:462-3 D 15 '15

Convict labor in road work in California. *Eng & Contr* 46:111 Ag 2 '16

Excellent results from model convict camp. *il Eng Rec* 73:840 Je 24 '16

Experimental convict road camp near Atlanta. *Ga. Eng & Contr* 46:23 J1 5 '16

Four construction and thirteen maintenance gangs care for McLennan county's roads. W. C. Davidson. *il map Eng Rec* 74:177-9 Ag 5 '16

Highway construction in Washington by convict labor. *Eng & Contr* 45:494-5 My 31 '16

Making roads and men. O. R. Geyer. *il Sci Am S* 81:408 Je 24 '16

Road improvement in McDowell county, West Virginia. *Good Roads n s* 12:213-14 N 25 '16

Shirt and collar industries; report on the cost of production in the United States. U S Bur For & Dom Com misc ser 36:163-7 '16

Virginia road work. G. P. Coleman. *il Good Roads n s* 12:181-3 N 4 '16

Cook, Frederick Albert, 1865-

Arctic controversies. *Sci Am* 114:296 Mr 18 '16

Present status of the North pole question. E. S. Balch. *Sci Am* 114:301 Mr 18 '16

Cook, Walter, 1846-1916

Walter Cook—an appreciation. R. A. Cram. *il por Am Inst Arch J* 4:231-3 Je '16

Cookers, Steam. *See* Steam cookers

Cookery

Science for the home; losses and other chemical changes in boiling vegetables. K. I. Williams. *Sci Am S* 81:362-3 Je 3 '16

See also Bread; Electric cooking; Fireless cookers; Gas cooking; Jelly; Kitchen utensils

Cookery (eggs)

Motor-driven egg-boiling device. *il Elec W* 67:281 Ja 29 '16

Ruvio electrical egg cooker. *diag Elec R & W Elec'n* 69:214 J1 29 '16; *Elec W* 68:194 J1 22 '16

Using the electrolysis principle to cook eggs. *il diag Sci Am* 115:285 S 23 '16

Cookery (meat)

Device which makes broiling or roasting simple. *il Sci Am* 114:624 Je 10 '16

Cookery, Electric. *See* Electric cooking

Coolers. *See* Milk coolers; Water coolers

Cooling

Baker cooler. *il Met & Chem Eng* 14:166 F 1 '16

Deep-well condensing water. *Eng N* 76:779-80 O 26 '16

How to make homes cool and comfortable on hot summer days. J. R. McColl. *Dom Eng* 76: 296 Ag 26 '16

Monster cooling system. *plan Textile World* 51:999 F 5 '16

Perfume diffuser. C. Mayfield. *Sci Am S* 82: 310 N 11 '16

Two-stage air refrigerating plant for dry blast; abstract. *Am Soc M E J* 38:356 Ap '16

See also Automobile engines—Cooling; Cooling ponds; Cooling towers; Cooling water; Fruit, Precooling of; Gas and oil engines—Cooling; Milk coolers; Refrigeration and refrigerating machinery; Water coolers

Cooling ponds

Manchester to Bury electrification. *il diags map plans Engineer* 121:34-6, 38, 52-5 Ja 14-21 '16

Spray cooling ponds. *Iron Age* 98:67 J1 6 '16

Spray system for cooling condensing water. *il Textile World* 51:1407+ Mr 11 '16

Spraying condensing water. N. E. Horn. *Power* 44:91-2 J1 18 '16

Wasting heat economically; spray system for cooling condensing water. *il Factory* 17:286+ S '16

Cooling towers

Cooling system for Diesel-engine circulating water. A. V. Youens. *il Power* 43:77-8 Ja 18 '16

Cooling towers for transformer installation used by New England company. *il Elec W* 68:85 J1 8 '16

Large cooling tower at American steel and wire co., Anderson, Ind. *il Met & Chem Eng* 15:367 S 15 '16

Theory of cooling towers compared with results in practice; abstract. E. H. Coffey and G. A. Horne. *Am Soc M E J* 38:600 J1 '16

Cooling water

Saving waste water. D: Craft. *diag Power* 44: 362 S 5 '16

Cooperation

Coöperation, the basis of safety, efficiency and conservation, in the use of national mineral resources. C. Scholz. *Coal Age* 10: 839-40 N 18 '16

Cooperation—Continued

Co-operative advertising for trade associations.

H. A. Daniels. *Metal Work* 86:277-8 S 1 '16

See also Benefit societies; Profit sharing; also Kansas City railroad collection bureau

Cooperation of schools and shops. *See* Schools and shops, Cooperation of

Co-ordinates

Method of transforming latitude and longitude into plane co-ordinates. S. H. Thorndike. *diags Boston Soc C E J* 3:363-76 S '16

Copenhagen, Denmark**Harbor**

Harbor basin at Copenhagen formed by long caissons floated to place. O. Blume. *il diags Eng Rec* 74:207-8 Ag 12 '16

Copper

Annealing properties of copper at temperatures below 500 deg. cent., with particular reference to the effect of oxygen and of silver; abstract. G. V. Caesar and G. C. Gerner. *Am Soc M E J* 38:828-9 O '16

Armature copper losses in rotary converters and double-current generators. L. H. A. Carr. *Inst E E J* 54:49-52 D 1 '15

Brittleness of annealed copper. W. S. Ruder. *Metal Ind n s* 14:209-10 My '16; Same. *Iron Age* 97:1319 Je 1 '16

Chemistry in the brass foundry. E. P. Later. *Foundry* 44:317-19 Ag '16

Copper in shipbuilding. *Eng & Min J* 101:574 Mr 25 '16

Corrosion of tinned sheet copper; abstract. P. D. Merica. *Met & Chem Eng* 15:415-16 O 1 '16

Determination of copper in low-grade ores. F. O. Hawley. *Eng & Min J* 102:307-8 Ag 12 '16

Determination of copper in low-grade ores. H. A. B. Motherwell. *Eng & Min J* 102:472-3 S 9 '16

Electro-analytical method for the determination and separation of the metals of the copper-tin group. E. P. Schoch and D. J. Brown. *diags Am Chem Soc J* 38:1660-81 S '16

Electrolytic determination of copper in copper-manganese. E. D. Koepping. *Met & Chem Eng* 14:441-2 Ap 15 '16

Failure of a copper steam pipe on the Clan Urquhart. S. A. Houghton and P. McNeil. *diag Engineer* 122:88-9 Jl 28 '16

Occurrence and significance of twinned crystals in electrolytic copper. H. S. Rawdon. *il Met & Chem Eng* 15:406-8 O 1 '16

Production and properties of electrolytic copper. B. Welbourn. *il diag Inst E E J* 54:54-62 D 1 '15; Excerpts. *Engineer* 120:484-5 N 19 '15

Rapid method for the estimation of copper and iron. G. Edgar. *Am Chem Soc J* 38:884-7 Ap '16

Reclaiming copper from existing plants. O. Heller. *Elec W* 67:833 Ap 8 '16

Sources of error in the iodometric determination of copper. C. E. Smith. *Met & Chem Eng* 14:379-80 Ap 1 '16

Spectrophotometric study of copper complexes and the biuret reaction. P. A. Kober and A. B. Haw. *il diag Am Chem Soc J* 38:457-72 F '16

See also Brass; Bronze; Copper alloys; Copper founding; Copper industry and trade; Copper metallurgy; Copper mines and mining; Copper ores

Coloring

Coloring brass and copper. *Metal Work* 86:500 O 20 '16

Coloring copper work green. *Metal Work* 85:449 Mr 31 '16

Testing

Comparisons between electrolytic and two varieties of arsenical lake copper with respect to strength and ductility in cold-worked and annealed test strips. C. H. Mathewson and E. M. Thalheimer. *il diags Am Inst Min E Bul* 115:1185-1224 Jl '16; Abstract. *Met & Chem Eng* 15:599 N 15 '16

Mechanical strength of copper wire splices. E. R. Shepard. *Elec W* 68:366-8 Ag 19 '16

Copper alloys

Casting of metals in chill molds. J. Johnson. *diags Metal Ind n s* 14:253-5, 290-2 Je-Jl '16; Same. *Foundry* 44:185-90 My '16; Abstract. *Am Soc M E J* 38:666-8 Ag '16; Abstract. *Iron Age* 98:391 Ag 24 '16

Copper and nickel in ammunition. G. Lyon, jr. *il Metal Ind n s* 14:1-5 Ja '16

Hardness tests of copper-zinc alloys. D. Meneghini. *il Iron Tr R* 57:1240 D 23 '15

Making airtight alloy castings. S. D. Sleeth. *Iron Tr R* 59:569-70 S 21 '16; Same. *Met & Chem Eng* 15:352-3 S 15 '16; Same. *Foundry* 44:480-1 N '16; Same cond. *Mach* 23:132 O '16

Unreliability of brass and bronze. A. D. Flinn. *Iron Age* 96:1292-3 D 2 '15

See also Brass; Bronze; German silver; Muntz metal

Copper cyanide

Copper cyanide solutions. W. H. Weber. *Metal Ind n s* 13:493-4 D '15

Copper founding

Solid copper rings. *Foundry* 44:160-1 Ap '16

Copper industry and trade

Abstracts of annual reports of copper mining companies. *Eng & Min J* 101:731-9 Ap 22 '16

Average price of copper in 1915. *Eng & Min J* 102:273-4 Ag 5 '16

Copper in Germany. G. Hirsch. *Eng & Min J* 100:1056-8 D 25 '15

Copper refining in 1914. *Sci Am S* 81:151 Mr 4 '16

Copper-smelting conditions in the Pacific Northwest. *Eng & Min J* 102:298 Ag 12 '16

Copper statistics. map *Eng & Min J* 101:48-55 Ja 8 '16

Foreign trade in copper. *Eng & Min J* 102:313 Ag 12 '16

Japanese copper production. *Eng & Min J* 102:821 N 4 '16

Porphyry coppers in 1915. P. E. Barbour. *Eng & Min J* 101:742 Ap 22 '16

Progress in Porphyry coppers. *Eng & Min J* 102:522 S 16 '16

Refined copper production of the United States for the years 1913, 1914 and 1915. *Metal Ind n s* 14:193 My '16

Reporting the copper market. W. Douglas. *Eng & Min J* 102:434-5 S 2 '16

Situation in copper. *Eng & Min J* 102:954 N 25 '16

Trading gold for bronze pennies and locomotives for copper ore. W. S. Hiatt. *Ry Age* 60:168-9 Ja 28 '16

Copper metallurgy

Advent of flotation in the Clifton-Morenci district, Arizona. D. Cole. *il diags Am Inst Min E Bul* 117:1611-26 S '16; Abstract. *Eng & Min J* 102:712 O 14 '16

Analysis of tank resistance in electrolytic refining. L. Addicks. *diags Met & Chem Eng* 15:566-71 N 15 '16; Excerpt. *Elec W* 68:1110-11 D 2 '16

Ashio's copper-smelting works at Honzan, Japan. *il diag Eng & Min J* 100:998-1001 D 18 '15

Basic-lined converter in the Southwest. L. O. Howard. *Am Inst Min E Bul* 117:1539-43 S '16; Same cond. *Eng & Min J* 102:643-4 O 7 '16

Blast vs. reverberatory furnace. B. Magnus. *Eng & Min J* 102:668-9 O 7 '16

Changes in smelting practice of Anaconda copper mining co. F. Laist. *il Eng & Min J* 102:635-8 O 7 '16

Chloridizing and leaching plant of Virginia smelting co. F. A. Eustis. *il plan Eng & Min J* 101:803-5 My 6 '16

Continuous leaching apparatus, patented by M. C. Godbe. *Met & Chem Eng* 14:103 Ja 15 '16

Copper metallurgy in 1915. *Met & Chem Eng* 14:4-5 Ja 1 '16

Copper mining and metallurgy in Arizona. L. D. Ricketts. *Eng & Min J* 101:53-5 Ja 8 '16

Copper Queen reduction works. *Eng & Min J* 102:620 O 7 '16

Copper-refining process. *Eng & Min J* 102:943-4 N 25 '16

Copper smelting at Naltagua in central Chile. M. L. Lamb. *il Eng & Min J* 102:777-80 O 28 '16

Copper metallurgy—Continued

- Copper smelting at the United Verde copper company. *il* Met & Chem Eng 15:251-3 S 1 '16
- Cost-accounting in the construction and operation of a copper smelter. E. E. Thum. Met & Chem Eng 14:525-9, 573-5, 660-2; 15: 96-100 My 1-Je 1, JI 15 '16
- Determination of dust losses at the Copper Queen reduction works, Douglas, Ariz. J. M. Samuel. *diags* plan Am Inst Min E Bul 114: 1079-98 Je '16; Excerpts. Eng & Min J 101: 1061-3 Je 17 '16; Abstract. Met & Chem Eng 15:155-6 Ag 1 '16; Discussion. Am Inst Min E Bul 120:2148-51 D '16
- Dust losses in copper smelting. L. D. Ricketts. Eng & Min J 102:396-7 Ag 26 '16
- Electrolysis of copper leaching solutions; patented by W. E. Greenawalt. Met & Chem Eng 14:609-10 My 15 '16
- Electrolytic copper refining. F. L. Antisell and S. Skowronski. Eng & Min J 102:874-6 N 11 '16
- Features of the new copper smelting plants in Arizona. A. G. McGregor. *il* *diags* plan Am Inst Min E Bul 116:1257-79 Ag '16; Same. Met & Chem Eng 15:329-37 S 15 '16
- Flotation concentration at Anaconda, Mont. F. Laist and A. E. Wiggin. *il* *diags* flow sheets Am Inst Min E Bul 111:549-81 Mr '16; Same cond. Eng & Min J 101:469-75 Mr 11 '16; Discussion. Am Inst Min E Bul 119:1889-96 N '16
- Flow sheets of Arizona mining companies. Met & Chem Eng 15:482-7 O 15 '16
- General subject of leaching; discussion. Am Inst Min E Bul 120:2160-3 D '16
- History of the flotation process at Inspiration. R. Gahl. flow sheets *diags* plans Am Inst Min E Bul 117:1627-81 S '16; Same. Met & Chem Eng 15:393-405, 455-64 O 1-15 '16; Discussion. Am Inst Min E Bul 118:1870-5; 119: 1879-88 O-N '16
- Hydrometallurgy of copper, patented by R. R. Goodrich. *diag* Met & Chem Eng 14:341 Mr 15 '16
- International smelter at Miami. R. W. Kerns. *il* *diags* Eng & Min J 101:421-4 Mr 4 '16
- Investigation into the flowing temperatures of copper mattes and of copper-nickel mattes. G. A. Guess and F. E. Lathe. *diag* Am Inst Min E Bul 114:1067-72 Je '16
- Leaching tests at New Cornelia. H. W. Morse and H. A. Tobelmann. flow sheet Am Inst Min E Bul 117:1593-1610 S '16; Abstract. Met & Chem Eng 15:484-5 O 15 '16; Discussion. Am Inst Min E Bul 120:2151-9 D '16
- Limestone precipitation of weak copper solutions. Eng & Min J 102:749, 870 O 21, N 11 '16
- Metallurgical operations at the Braden copper co. R. E. Douglass and B. T. Colley. *il* Eng & Min J 101:315-21 F 12 '16; Abstract. Met & Chem Eng 14:279 Mr 1 '16
- Metallurgical operations at the Chile exploration co. C. A. Rose. *il* *diags* flow sheet Eng & Min J 101:321-6 F 12 '16; Abstract. Met & Chem Eng 14:278-9 Mr 1 '16
- Metallurgical plants of Arizona; a brief summary. map Met & Chem Eng 15:167-71 Ag 15 '16
- Metallurgy of copper in 1915. L. Addicks. Eng & Min J 101:90-2 Ja 8 '16
- Method of determining dust loss at Copper Cliff, Ont. E. H. Robie. *il* *diag* Eng & Min J 101:505-8 Mr 18 '16
- Method of smelting finely divided ores. *diags* Met & Chem Eng 14:397 Ap 1 '16
- Miami copper co. data. flow sheet Eng & Min J 102:710 O 14 '16
- Mine and mill plant of the Inspiration consolidated copper co. H. K. Burch. flow sheet *il* *diags* plan Am Inst Min E Bul 117:1467-1500 S '16; Same cond. Eng & Min J 102: 411-15, 457-60 S 2-9 '16
- Multiple vs. series electrolytic copper refining. P. L. Gill. Eng & Min J 101:9-10 Ja 1 '16
- Ohio copper concentrator. G. O. Deshler. *il* Eng & Min J 102:855-6 N 11 '16
- Operating a small copper blast furnace. A. Bregman. *il* *diags* Eng & Min J 102:171-4 JI 22 '16
- Plan and flow sheet of the Anaconda works. Eng & Min J 101:552-3 Mr 25 '16
- Possibilities in the wet treatment of copper concentrates. L. Addicks. *il* Am Inst Min E Bul 117:1565-73 S '16; Same. Met & Chem Eng 15:628-30 D 1 '16; Discussion. Am Inst Min E Bul 120:2160 D '16
- Progress at Ajo leaching plant. Eng & Min J 102:944 N 25 '16
- Recent improvements in conditions at the Washoe reduction works, Anaconda, Mont. E. P. Mathewson. Met & Chem Eng 14:327-8 Mr 15 '16
- Recent progress in the metallurgy of copper. H. O. Hofman. J Fr Inst 181:83-97 Ja '16
- Reverberatory smelting at Consolidated Arizona smelting company, Humboldt, Arizona. Met & Chem Eng 14:33-4 Ja 1 '16
- Roasting-matting of copper ores in fine condition. *diag* Eng & Min J 101:479 Mr 11 '16
- Smelting at the Arizona copper co.'s works. F. N. Flynn. *il* Am Inst Min E Bul 117: 1575-92 S '16; Same cond. Eng & Min J 102: 703-6 O 14 '16
- Sources of metal loss in copper refining. L. Addicks. Met & Chem Eng 15:11-15 JI 1 '16; Abstract. Elec W 68:485-6 S 2 '16
- 2,000-ton leaching plant at Anaconda. F. Laist and H. W. Aldrich. *il* *diags* flow sheet Am Inst Min E Bul 116:1281-93 Ag '16; Same cond. Eng & Min J 102:337-8 Ag 19 '16; Abstract. Met & Chem Eng 15:485 O 15 '16; Discussion. Am Inst Min E Bul 120:2159 D '16
- Winona, Mich., copper-leaching test plant. Eng & Min J 102:929-30 N 25 '16

Copper mines and mining

- Cost and extraction in the selection of a mining method. C. E. Arnold. Am Inst Min E Bul 117:1519-22 S '16; Discussion. 120:2180-1 D '16
- Mine-fire methods employed by the United Verde copper co. R. E. Tally. *diag* plans Am Inst Min E Bul 117:1545-53 S '16; Discussion. 120:2173-80 D '16

Alaska

- Kennecott mines in Alaska. S. Birch. Eng & Min J 101:52 Ja 8 '16

Arizona

- Block method of top slicing of the Miami copper co. E. G. Deane. plan Am Inst Min E Bul 117:1515-18 S '16; Discussion. 120: 2172 D '16
- Copper mining and metallurgy in Arizona. L. D. Ricketts. Eng & Min J 101:53-5 Ja 8 '16
- Data of the mines composing the Calumet & Arizona group. Eng & Min J 102:723 O 14 '16
- Inspiration operations in August, 1916. Eng & Min J 102:678-9 O 7 '16
- Miami copper co. data. flow sheet Eng & Min J 102:710 O 14 '16
- Mine and mill plant of the Inspiration consolidated copper company. H. K. Burch. flow sheet *il* *diags* plan Am Inst Min E Bul 117:1467-1500 S '16; Same cond. Eng & Min J 102:537-42 S 23 '16
- Mitchell top-slice and caving system. R. H. Dickson. *diags* Eng & Min J 101:545-9 Mr 25 '16
- Old Dominion operations, Globe, Arizona. flow sheet Eng & Min J 102:754-5 O 21 '16
- Ore-drawing tests and the resulting mining method of Inspiration consolidated copper co. G. R. Lehman. *il* *diags* Am Inst Min E Bul 117:1501-14 S '16
- Stopping in the Calumet and Arizona mines, Bisbee, Ariz. P. D. Wilson. *diags* Am Inst Min E Bul 115:1099-1117 JI '16
- Stopping methods of Miami copper co. D. B. Scott. *diags* Am Inst Min E Bul 114:1031-47 Je '16; Same. Eng & Min J 102:495-500 S 16 '16
- Water problem at the Old Dominion mine. P. G. Beckett. *diags* maps Am Inst Min E Bul 112:679-710 Ap '16

Canada

- Copper in the far North. Eng & Min J 102: 424 S 2 '16

Chile

- Copper production in Chile. P. Yeatman. Eng & Min J 101:53 Ja 8 '16

Copper mines and mining—Chile—Continued

- Metallurgical operations at the Braden copper co. R. E. Douglass and B. T. Colley. *il Eng & Min J* 101:315-21 F 12 '16
 Mine of Chile exploration co., Chuquicamata, Chile. P. Yeatman. *il Eng & Min J* 101:307-14 F 12 '16
 Mining at Tocopilla, Chile. *Eng & Min J* 101:259 F 5 '16

Cuba

- Copper mines in Cuba. *il Eng & Min J* 102:386 Ag 26 '16
 Mining in Oriente province, Cuba. J. T. Singewald, jr. and B. L. Miller. *il map Eng & Min J* 101:587-92 Ap 1 '16
 Pinar del Rio copper region. R. H. Vail. *Eng & Min J* 102:950-2 N 25 '16

Germany

- Copper in Germany. G. Hirsch. *Eng & Min J* 100:1056-8 D 25 '15

Lake Superior district

- Lake Superior copper district. C. L. C. Fichtel. *Eng & Min J* 101:140-1 Ja 15 '16

Montana

- Anaconda betterments. *Eng & Min J* 101:361-2 F 19 '16

Peru

- Cerro de Pasco district, Peru. J. M. Clements. *Eng & Min J* 102:760 O 21 '16
 Cerro de Pasco district, Peru. J. T. Singewald, jr. and B. L. Miller. *il map Eng & Min J* 101:1015-18 Je 10 '16
 Morococha and Casapalca districts in Peru. J. T. Singewald, jr. and B. L. Miller. *il maps Eng & Min J* 102:889-93 N 18 '16

Tasmania

- Mining methods at Mount Lyell. R. M. Murray. *diag Eng & Min J* 102:416-19 S 2 '16

Utah

- Construction of the Bingham & Garfield Ry. H. C. Goodrich. *il maps Ry R* 59:232-8 Ag 19 '16
 Underground mining methods of Utah copper co. T. S. Carnahan. *diags Am Inst Min E Bul* 109:51-64 Ja '16; Same cond. *Eng & Min J* 101:216-20 Ja 29 '16

Copper ores

- Copper deposits in the "Red Beds" of Texas. L. M. Richard. *Econ Geol* 10:634-50 N '15
 Drilling and analysis of copper ores. A. J. Sale. *Eng & Min J* 102:87-90 Jl 8 '16
 Geology of the Warren mining district. Y. S. Bonillas, J. B. Tenney and L. Feuchère. *il diags map Am Inst Min E Bul* 117:1397-1465 S '16; Discussion. 120:2164-8 D '16
 Interpretation of assay curves for drill holes. E. H. Perry and A. Locke. *Am Inst Min E Bul* 110:195-201 F '16; Same cond. *Eng & Min J* 101:726-8 Ap 22 '16
 Metallographic study of the copper ores of Maryland. R. M. Overbeck. *il Econ Geol* 11:151-78 Mr '16
 Mineralization at Clifton-Morenci. L. E. Reber, jr. *pls map Econ Geol* 11:528-73 Ag '16
 Origin of copper ores of the Red Beds type. A. F. Rogers. 3 *pls Econ Geol* 11:366-80 Je '16; Discussion. H. W. Turner. *Econ Geol* 11:594-7 Ag '16
 Peculiar type of ore from the Tye copper deposit of Vancouver Island. V. Dolmage. *Econ Geol* 11:390-4 Je '16
 Pyritic copper deposits of Kyshtim, Russia. A. W. Stickney. *bibliog pls Econ Geol* 10:593-633 N '15
 Reactions involved in secondary copper sulphide enrichment. E. G. Zies, E. T. Allen and H. E. Merwin. *diags Econ Geol* 11:407-503 Jl '16

See also Chalcocite; Copper metallurgy; Copper mines and mining

Copper oxide

- Use of copper oxide for fractionation combustion of hydrogen and carbon monoxide in gas mixtures. G. A. Burrell and G. G. Oberfell. *diag J Ind & Eng Chem* 8:228-31 Mr '16

Copper plating

- Cyanide vs. acid plating solutions. C. Dittmar. *Metal Ind n s* 14:78 F '16
 Deposited copper parts. *il Mach* 22:536 F '16
 Deposition of copper in electrotyping baths. A. Blum, H. D. Holler, H. Rawdon and E. L. Lasier. *Met & Chem Eng* 14:487-8 My 1 '16
 Electroplating with copper; patented by S. C. Babcock and E. W. Hagmaier. *Met & Chem Eng* 14:665 Je 1 '16

Copper Queen consolidated mining company

- Flow sheet. *Met & Chem Eng* 15:482 O 15 '16

Copper smelting. *See* Copper metallurgy**Copper steel.** *See* Steel**Copper sulphate**

- Basic copper sulfates. S. W. Young and A. E. Stearn. *Am Chem Soc J* 38:1947-53 O '16
 Copper sulphate from scrap. *Metal Ind n s* 14:426 O '16
 Density of aqueous solutions of copper sulfate and sulfuric acid. H. D. Holler and E. L. Peffer. *Am Chem Soc J* 38:1021-9 My 16

Copper sulphide

- Graphic intergrowth of bornite and chalcocite. A. F. Rogers. *pls Econ Geol* 11:582-93 Ag '16
 Laboratory studies in sulphide ore enrichment; formation of chalcopyrite by artificial replacement. S. W. Young and N. P. Moore. *il Econ Geol* 11:574-81 Ag '16
 Laboratory studies on secondary sulphide ore enrichment. S. W. Young and N. P. Moore. *Econ Geol* 11:349-65 Je '16
 Metal oxide and sulphide impregnation of firebrick. N. B. Davis. *pls Econ Geol* 10:663-75 N '15
 Reactions involved in secondary copper sulphide enrichment. E. G. Zies, E. T. Allen and H. E. Merwin. *diags Econ Geol* 11:407-503 Jl '16

Copy, Preparation of. *See* Manuscripts, Preparation of**Coral reefs and islands**

- Shoal water corals; the ecology of the Floridian and Bahaman. T. W. Vaughan. *Sci Am S* 81:318-19 My 13 '16

Cores. *See* Foundry practice**Cork**

- Application of cork to the drawing and spinning of worsted, woolen and cotton yarns. L. H. Pullman. *il Textile World* 51:3819 S 2 '16
 How cork insulation is made. C. B. Rowley. *Power* 44:467 S 26 '16

Corliss engines. *See* Steam engines**Corn cribs.** *See* Corncribs**Corn starch**

- Factory control in the manufacture of cornstarch and corn syrup. A. P. Bryant. *J Ind & Eng Chem* 8:930-2 O '16

Corn syrup

- Factory control in the manufacture of cornstarch and corn syrup. A. P. Bryant. *J Ind & Eng Chem* 8:930-2 O '16

Corncribs

- Modern corn crib and granary. *diags plan Bldg Age* 38:70-1 N '16
 Sanitary corn crib for the up-to-date farmer. W. E. Frudden. *il diags Bldg Age* 38:33-5 Ja '16

Cornell university

- New group of agriculture buildings at Cornell university. *il plans Brickb* 25:81-8 Ap '16

Cornices

- Dormer and cornice, Colross mansion, Alexandria, Va.; measured and drawn by J. L. Kelster, O. J. Munson and J. A. Weber. *Brickb* 25:206 Ag '16

Corona

- Corona as a standard for measuring high voltage. J. B. Whitehead. *il Elec W* 67:1405-9 Je 17 '16
 Corona voltmeter. J. B. Whitehead and M. W. Pullen. *il diag Am Inst E E Pro* 35:791-815 Je '16; Discussion. 35:1611-20 N '16
 Investigation of direct-current corona at the University of Illinois. J. W. Davis and C. S. Breese. *Elec W* 67:881-2 Ap 15 '16

Corona—Continued

New form of high voltage measuring instrument. J. B. Whitehead. *il Sci Am* 115:164 Ag 19 '16

Corporation law

See also Public utilities; Railroad law

Corporation schools

Educational work of New York Edison company. *il Elec W* 67:949-81 Ap 29 '16
Ford's melting pot. *il Automobile* 35:611 O 12 '16
New York Edison company adopts new school course in electric appliances. *il Elec R & W* 67:1102-3 D 18 '15

See also Bosch magneto co.

Corporations

Federal incorporation. C. Nagel. *Am Ind* 16:36-8 Je '16

See also Government ownership; Government regulation of industry; Public utilities; Receivers

Accounting

Capital stock with no par value. S. Walton. *J Account* 21:294-7 Ap '16
Changes in ownership of capital stock. S. Walton. *J Account* 21:393-400 My '16
Corporation accounting. S. Walton. *J Account* 21:66-8 Ja '16
Interest on capital. G. Mahon. *J Account* 22:253-8 O '16
Interest on capital. W. P. Hilton. *J Account* 22:259-64 O '16
Problem in corporation accounting. S. Walton. *J Account* 21:299-304 Ap '16

Employees

Loyalty of corporation employees. R. H. Ballard. *Am Gas Light* 100:394 D 20 '15

Finance

Net incomes of industrial corporations. *Iron Age* 96:1366-7 D 9 '15
Treasury stock. W. T. Sunley, jr. *J Account* 20:424-9 D '15

Taxation

See also Mine taxation

Corporations, Public service. See Public utilities

Corrosion, Electrolytic. See Electrolytic corrosion

Corrosion and anti-corrosives

Alloys to resist corrosion; British institute of metals issues report on bronzes and similar alloys. *Automobile* 34:726 Ap 20 '16

Artificially softened water reduces rusting. *Power* 43:155 F 1 '16

Bad effects resulting from the use of salt water in reinforced concrete structures built in tropical countries. J. L. Harrison. *il Eng & Contr* 46:443-6 N 22 '16

Corroded metal found in old truss bridge. J. H. Weatherford. *il Eng Rec* 74:464 O 14 '16

Corrosion and the electrochemist. W. H. Walker. *Iron Tr R* 59:86 J1 13 '16

Corrosion of a solid solution 70/30 brass. W. E. Gibbs. *Sci Am S* 82:58 J1 22 '16
Corrosion of condenser tubes. *Iron Age* 98:51 J1 6 '16

Corrosion of condenser tubes; report of committee of the Institute of metals. *Met & Chem Eng* 14:566-8 My 15 '16

Corrosion of galvanizing pots. *Metal Ind n s* 14:432 O '16

Corrosion of high chromium steels. R. Hadfield. *Iron Age* 97:202-3 Ja 20 '16; Abstract. (Stainless steel). *Eng M* 50:947 Mr '16

Corrosion of metals; symposium at meeting of the Faraday society, Dec. 8, 1915. *Engineer* 120:571-3 D 17 '15

Corrosion of non-ferrous alloys. *Engineer* 121:281 Mr 31 '16

Corrosion of steel and cast iron compared. R. C. McWane and H. Y. Carson. *il Foundry* 43:467-9 N '15; Same. *Iron Tr R* 58:141-3 Ja 13 '16

Corrosion of submerged metal at the Panama locks. G. W. Goethals. *Eng N* 76:1005 N 23 '16

Corrosion of 350-mile Australian steel pipe line 12 years old. P. V. O'Brien. *Eng Rec* 74:501-2 O 21 '16

Corrosion of tinned sheet copper; abstract. P. D. Merica. *Met & Chem Eng* 15:415-16 O 1 '16

Cumberland method of preventing corrosion. E. Cumberland. *diags Power* 44:184-5 Ag 1 '16; Abstract. *Eng M* 51:439 Je '16

Cumberland process of preventing corrosion. J. F. Peter. *Sci Am S* 82:16 J1 1 '16

Decay of metals; abstracts. C. H. Desch. *Eng M* 51:439-9 Je '16; *Sci Am S* 82:182-3 S 16 '16; *Mach* 23:131 O '16

Effect of corrosion on the ductility and strength of brass. P. D. Merica. *Met & Chem Eng* 15:321-4 S 15 '16

External corrosion of water pipe by sulphuric acid. H. P. Eddy. *Boston Soc C E J* 2:377-8 D '15

Facts about rust and its formation. *Automobile* 33:1062-3 D 9 '15

Gypsum and its effect on embedded steel. V. G. Marani. *il Eng N* 76:229 Ag 3 '16

Influence of carbon and manganese upon the corrosion of iron and steel. R. Hadfield and J. N. Friend. *Engineer* 121:528-30 Je 23 '16; Excerpts. *Iron Age* 97:1258 My 25 '16; Excerpt. *Met & Chem Eng* 15:45-6 J1 1 '16

Institute of metals, annual general meeting. *Engineer* 121:276, 293-4 Mr 31-Apr 7 '16

Iron and steel institute; discussion on the papers by R. Hadfield and J. N. Friend and L. Aitchison. *Engineer* 121:396-7 My 12 '16

Methods of testing for pipe corrosion. F. N. Speller. *il Iron Tr R* 58:1426 Je 29 '16; Same. *Met & Chem Eng* 15:87 J1 15 '16; Same. *Power* 44:307 Ag 29 '16; Same cond. *Iron Age* 98:79 J1 13 '16; Same cond. *Metal Work* 86:274 S 1 '16

New anti-rust recipe. *Dom Eng* 74:358 Mr 18 '16

Observations upon the atmospheric corrosion of commercial sheet iron. E. A. Richardson and L. T. Richardson. *il Met & Chem Eng* 15:450-3 O 15 '16; Conclusions. *Iron Age* 98:778 O 5 '16; Conclusions. *Metal Work* 86:584 N 10 '16

Oiling rails and fastenings to prevent corrosion. *il Eng N* 76:847-8 N 2 '16

Physical and mechanical factors in corrosion. C. H. Desch. *Sci Am S* 81:298-9 My 6 '16

Prevention of condenser corrosion; abstract. J. F. Peter. *Elec W* 68:725 O 7 '16

Prevention of corrosion. *il diag Engineer* 121:243 Mr 17 '16

Prevention of corrosion in pipe lines. F. N. Speller. *diag Power* 43:304-6, 590 F 29, Ap 25 '16; Same cond. *Ry Mech Eng* 90:227-9 My '16; Same cond. *Iron Tr R* 59:1098-1101 N 30 '16

Relation of slag to rust resistance of wrought iron. *il Iron Tr R* 58:1367 Je 22 '16

Relative corrodibilities of iron and steel. J. N. Friend. *Engineer* 120:559-60 D 10 '15

Research on the corrosion resistance of copper steel. D. M. Buck and J. O. Handy. *il J Ind & Eng Chem* 8:209-16 Mr '16; Same cond. *Iron Tr R* 58:533-41 Mr 9 '16; Same cond. *Iron Age* 97:596-600 Mr 9 '16; Same cond. *Metal Work* 85:376-9 Mr 17 '16; Abstract. *Am Soc M E J* 38:346 Ap '16

Rust deposits in gas mains and services. A. F. Kersting; J. W. Lansley. *Am Gas Light* 104:339-42 My 29 '16

Rust-proofing process for treating cast and wrought iron and steel. *Sci Am* 115:43 J1 8 '16

Rusted pony truss collapses at Johnstown, Penn. *il diags Eng N* 75:622-4 Mr 30 '16

Rusting of iron and some methods for its protection. *Sci Am S* 82:6 J1 1 '16

Rusting of iron and steel; abstract. J. Scott. *il Am Soc M E J* 38:184-5 F '16

Rustless ferro-alloys. L. Aitchison. *il Engineer* 121:329-30, 351-2 Ap 21-23 '16

Theory of the corrosion of steel. L. Aitchison. *il Met & Chem Eng* 15:88-92 J1 15 '16; Abstract. *Iron Age* 98:23 J1 6 '16

See also Boilers—Corrosion; Electrolytic corrosion; Metal protection; Waterproofing

Corrugation of rails. See Rails—Corrugation**Corset stays**

Press tools for making sheet steel corset stays. *il Mach* 22:1053 Ag '16

Corthell, Elmer Lawrence, 1840-

American society elects Elmer L. Corthell president. *por Eng Rec* 73:125+ Ja 22 '16

President of the American society of civil engineers. D. Fitz Gerald. *por Eng N* 75:216 F 3 '16

Corthell, Elmer Lawrence—Continued

Sketch. Eng N 75:63 My 18 '16
Sketch and appreciations. por Eng Rec 73:
684-9 My 20 '16

Cosmogony

Protocodon of a world; a suggested cosmogony
to account for the evolution of a stellar sys-
tem without the necessity of matter being
originally present. L. B. Buchanan. Sci Am S
82:114-15 Ag 19 '16

Vortex hypothesis of world formation; an ex-
amination and explanation of the theories
of Belot. E. Briner. diags Sci Am S 82:332-3
N 18 '16

Cost

See also Prices; Value; also subdivision
Cost, under names of subjects

Cost accounting

Classification of expenditures for irrigation
work. F. H. Newell. Eng & Contr 45:201-4 Mr
1 '16

Construction cost keeping by the Mason City,
Iowa, water department. W. A. Judd. Eng &
Contr 44:146-7 D 8 '15

Conversion cost of flat cut woolen underwear.
E. Tompkins. Textile World 51:835, 837+ Ja
22 '16

Correct method of figuring overhead expense.
Metal Work 84:733-4 D 10 '15

Cost accounting for manufacturers. R. E.
Belt and R. W. Gardiner. Ry R 59:222-3 Ag
12 '16

Cost-accounting in the construction and
operation of a copper smelter. E. E. Thum.
Met & Chem Eng 14:525-9, 573-5, 660-2; 15:
46-100 My 1-Je 1, Jl 15 '16

Cost determinations of 22-in. steel pipe manu-
facture. H. A. Whitney. Eng & Contr 45:497-
9 My 31 '16

Cost-finding and accounting conditions: U S
Bur For & Dom Com misc ser 34:219-33 '16

Cost keeping methods for concrete construc-
tion. Eng & Contr 46:458-60 N 22 '16

Cost keeping system for building contractors.
D. B. Duncan. Eng & Contr 46:272-3 S 27
'16

Cost keeping the basis of prosperity. H. F.
Porter. Eng M 51:325-32 Je 16 '16

Cost of cost-keeping cut by study of office
force. D. Patch. Eng Rec 74:53 Jl 8 '16

Determining costs of manufacturing and sell-
ing. Textile World 51:3639+ Ag 19 '16

Direct-method job cost for contractors. G. W.
Hill. Elec R & W Elec'n 68:513-15 Mr 18 '16

Dovetailing costs into the books; cost system
of a candy factory. H. S. Gooch. Factory 16:
577-80 Je 16 '16

Farm cost accounting. E. H. Thomson. J Ac-
count 20:401-20 D 15 '16

Federal trade commission and the mining in-
dustry. E. N. Hurley. Coal Age 10:887-9 N
25 '16

Figuring costs and profits. Metal Work 84:783
D 17 '15

Finding costs in a wood-working factory.
F. H. LeMont. il Factory 17:531-5 N '16

Fundamentals of a cost system for manu-
facturers. U S Fed Tr Comm 31p Jl 1 '16;

Excerpt. Am Ind 17:26-7 S '16

Hosiery industry. U S Bur For & Dom Com
misc ser 31:150-8 '15

How graphic control facilitates the fixing of
profits. D. T. Farnham. Eng M 52:16-22 O
'16

How to study factory efficiency. J. K. Mason.
diags Eng M 51:542-7 Jl '16

How we keep costs in our 75-man plant. E. A.
Clark. Factory 17:405-8 O '16

Importance of accurate cost figures. C. E.
Pierce. Metal Work 85:890 Je 30 '16

Importance of true cost. R. E. Belt. J Account
22:28-34 Jl '16

Industrial accounting. F. J. Knoeppel. J Ac-
count 22:245-52, 353-60, 417-32 O-D '16

Interest and cost. J Account 22:205-14 S '16

Is your cost system scientific? W. E. Mc-
Henry. Eng M 51:678-86 Ag '16

Job-cost system for contractors. A. R. Schmidt.
Elec R & W Elec'n 68:599 Ap 1 '16

Keeping mechanical department costs. F. A.
Miller. Elec Ry J 48:312-14 Ag 19 '16

Keeping systematic costs in a jobbing shop.
J. S. Watts. Foundry 44:120-1 Mr '16

Knowledge of costs as a basis for manufactur-
ing advance. E. N. Hurley. Elec W 67:15-16
Ja 1 '16

Labor cost keeping in a boiler shop. Iron Age
98:42-3 Ag 1 '16

Labor cost-keeping system for concrete bridge
work. R. A. Small. Eng & Contr 45:142-3 F
9 '16

Logical factory costs. W. E. McHenry. Eng M
50:733-41 F '16

Making a contractor's costs and bids agree.
H. A. Harris. Metal Work 86:313-15, 407-9+
467-9 S 8, 29, O 13 '16

Making a cost profile. P. L. Mathews. Coal
Age 10:751-2 N 4 '16

Making a profit on warm-air furnace jobs.
Metal Work 85:670-1 My 19 '16

Manufacturing expense distribution. N. T.
Ficker. Eng M 49:321-6, 553-9, 690-7, 862-71;
50:58-64, 254-61, 390-400, 532-9 Je '15-Ja '16

Method of keeping a graphic cost-progress
record on sewer construction. W. A. Ben-
nett. Eng & Contr 45:64-5 Ja 19 '16

Method of keeping costs on the Plute irriga-
tion project earth dam. J. Jensen. Eng &
Contr 46:56-8 Jl 19 '16

Methods and results of cost recording on
pavement work at St. Paul, Minn. J. E. Car-
roll. Eng & Contr 44:41-4 D 8 '15

Methods of textile cost finding. W. A. Tucker.
Textile World 51:511-12+ Ja 15 '16

Necessity of rational cost keeping; abstract.
C. H. Scovell. Eng M 51:120-1 Ap '16

New method of determining factory costs. W.
Kent. Iron Age 98:392-4 Ag 24 '16

Operating value of cost systems. G. W. Mix-
ter. Iron Age 98:932-3 O 26 '16

Practical cost system for combination shop.
Metal Work 85:551-2 Ap 21 '16

Practical costs. E. S. Clark. Ind Management
52:299-305 D '16

Production and sales. H. L. Gantt. Eng M 50:
593-600 Ja '16

Productive capacity a measure of value of
an industrial property. H. L. Gantt. Am Soc
M E J 38:876-8 N '16

Reasons for excluding interest from cost. G. O.
May. J Account 21:401-9 Je '16

Regulating costs and profits. Metal Work 85:
280 F 25 '16

Selling and cost keeping ideas from Barberton,
Ohio. Concrete 8:67-9 F '16

Shirt and collar industries; report on the cost
of production in the United States. U S Bur
For & Dom Com misc ser 36:108-20 '16

Simple and efficient cost keeping system for
concrete construction. H. J. Gould. Eng &
Contr 46:199-202 Ag 30 '16

Simple shop cost system. Horseless Age 38:
114-15 Ag 15 '16

Simplicity and accuracy in cost work; method
used by the Curtis publishing company. L. A.
Miller. Eng M 51:256-9 My '16

Simplicity the keynote of Oregon's state high-
way cost-keeping system. G. E. Ross. Eng
Rec 73:822-4 Je 24 '16

Survey of business of thirty-six plumbing es-
tablishments in Minneapolis. J. O'Donnell.
Dom Eng 75:106-8 Ap 22 '16

Synthetic costs. J. K. Mason. Eng M 52:63-6
O '16

Talk on overhead expense and peanuts. E. E.
Melum. Dom Eng 74:9-11 Ja 1 '16

Technology of marble quarrying. O. Bowles.
U S Bur Mines Bul 106:144-67 '16

Two examples of foundry cost accounting.
W. E. Freeland. Iron Age 98:493-8 S 7 '16

Unit time-card and pay-roll system. G. W.
Hill. Elec R & W Elec'n 68:681-3 Ap 15 '16

Uses of knitting mill cost accounting system.
R. H. Butz. Textile World 51:4531 O 21 '16

See also Accounting; Depreciation; Over-
head expense

Cost of living

Export trade suggestions; cost of living in
Buenos Aires. U S Bur For & Dom Com misc
ser 35:39-43 '16

Costa Rica**Antiquities.**

Relics of ancient Costa Rica. W. L. Beasley.
il Sci Am 113:520+ D 11 '15

Costa Rica—Continued

Industries and resources

Central America as an export field. G. Harris and others. *il U S Bur For & Dom Com* 113: 162-96 '16

Cottages

Cottage of C. V. Lancaster at San Antonio. *il diags plan Bldg Age* 38:53-7 Je '16
Cottage of shingled exterior; home of E. W. Bill, Haworth, N. J. *il diags plans Bldg Age* 38:53-7 O '16

Four-room cottage for the suburbs. *il plans Bldg Age* 38:42-5 Mr '16

Frame cottage for the suburbs. *il plans Bldg Age* 38:42-5 S '16

Frame cottage in a New York suburb. *il diags plans Bldg Age* 38:19-25 D '16

Low, cost cottage of stucco finish. *il plans Bldg Age* 38:59-60 Ag '16

Methods of cottage construction. J. F. Hobart. *il Bldg Age* 38:54-5 Ja '16

Modern fire-resisting cottage. *il diags plans Bldg Age* 38:67-70 My '16

Suburban cottage of moderate cost. *il diags plans Bldg Age* 38:43-6 Je '16

Suburban cottage of six rooms. *il diags plans Bldg Age* 38:42-5 Ap '16

See also Architecture, Domestic; Bungalows; Country houses

Cotton

Cotton in explosives. *Textile World* 51:4441+ O 14 '16

Grading and stapling cotton at the mill. *Textile World* 51:1301+ Mr 4 '16

Physical and chemical properties of cotton. W. Harrison. *Textile World* 51:4147+ S 23 '16

See also Cotton carding; Cotton fabrics; Cotton manufacture; Cotton mills; Cotton spinning; Cotton trade; Dyes and dyeing—Cotton; Khaki; Textile industry and fabrics; Weaving

Diseases and pests

Much damage done to cotton fields by red spider. *Textile World* 51:3041+ Jl 1 '16

Dyeing

See Dyes and dyeing—Cotton

Testing

Analysis of preliminary moisture tests on cotton. J. H. Lester. *Textile World* 51:3109 Jl 8 '16

Convenient method of measuring moisture in cotton. F. J. Hoxie. *il Textile World* 51:2657+ Je 3 '16

Manufacturing tests of cotton fumigated with hydrocyanic-acid gas. W. S. Dean. *U S Agric Bul* 366:1-12 '16; Excerpt. *Textile World* 51:4343 O 7 '16

Micro-photography in cotton spinning. *il Textile World* 51:565, 691 Ja 15 '16

Preliminary moisture tests on cotton. F. Taylor and G. E. Gaus. *Textile World* 51:1843+ Ap 15 '16

Preliminary moisture tests on cotton; reply to J. H. Lester's criticism of report on government experiments. F. Taylor. *Textile World* 51:3455 Ag 5 '16

Testing cotton fabrics. *Textile World* 51:3113+ Jl 8 '16

Cotton, Absorbent

Boiling kier for absorbent cotton and linters. *diag Textile World* 51:343+ Ja 1 '16

Manufacture of absorbent cotton. L. J. Matos. *Textile World* 51:591+ Ja 15 '16

Cotton carding

Cotton carding. *Textile World* 51:360 Ja 1 '16
Picking and carding. C. C. Brigman. *Textile World* 51:5045-6 N 25 '16

Cotton combing

Does the comb remove short fibers? W. E. Hatch and W. Smith. *Textile World* 51:2115+ Ap 29 '16

Cotton fabrics

Machinery for bleaching, dyeing, and printing cotton fabrics. *diag Engineer* 121:250-1, 271-3, 208-10, 352-4, 391-5, 469-71, 537-9, 122:26-8, 70-2, 116-17, 162-4 Mr 24-31, Ap 14, 28, My 12, Je 9, 30, Jl 14, 28, Ag 11, 25 '16

Novelty effects in cotton dress goods fabrics. *il Textile World* 51:3111 Jl 8 '16

Removal of the natural impurities of cotton cloth by the action of bacteria. B. S. Levine. *J Ind & Eng Chem* 8:298-302 Ap '16

Stains in cotton goods bleaching and finishing. L. J. Matos. *Textile World* 51:4251 S 30 '16

Styles in cotton dress goods. *il Textile World* 51:1301 Mr 4 '16

Testing cotton fabrics. *Textile World* 51:3113+ Jl 8 '16

See also Cotton flannel; Cretonne; Toweling; Voile

Cotton finishing

Application of high temperature, water jacketed, calendar heating burners. *diags Textile World* 51:2573 My 27 '16

Back-filling sheetings. *diags Textile World* 51:1225 F 26 '16

Finishing buckram. *il Textile World* 51:273 D 25 '15

Finishing colored cotton goods. *Textile World* 51:289 D 25 '15

Finishing cotton goods. *il Textile World* 51:894+ Ja 29 '16

Machinery for bleaching, dyeing and printing cotton fabrics. *il diags Engineer* 121:272; 122:70-2, 116-17 Mr 31, Jl 28, Ag 11 '16

Mercerizing cotton piece goods. *diag Textile World* 51:1229+ F 26 '16

Starching trouble. *Textile World* 51:1961, 2569, 2945 Ap 22, My 27, Je 24 '16

Cotton flannel

Bleaching and dyeing cotton flannels. *Textile World* 51:1959+ Ap 22 '16

Cotton futures act

Regulations for operation of new future legislation promulgated. *Textile World* 51:4087 S 23 '16

Cotton handling

Cotton handling in southern warehouses. J. R. Fordyce. *Textile World* 51:2113+ Ap 29 '16

Development of inland ocean port at Houston, Tex. *il plans Eng N* 75:978-80 My 25 '16

Mechanical equipment used in the port of New Orleans. W. Von Phul. *il Am Soc M E J* 38:522-4 Jl '16

Warehouse crane runways carried on wall brackets. *il diags Eng Rec* 73:614-15 My 6 '16

Cotton machinery

Care and adjustment of cotton preparatory machinery. *Textile World* 51:135 D 11 '15

Continuous cotton washing, picking and drying machines. *diag Textile World* 51:1075 F 12 '16

Cotton ginning and spinning in one operation. *diag Textile World* 51:3905 S 9 '16

Cotton-spinning machinery industry. bibliog *U S Bur For & Dom Com misc ser* 37:1-98 '16

Does the comb remove short fibers? W. E. Hatch and W. Smith. *Textile World* 51:2115+ Ap 29 '16

Effect of drafts and speeds on cotton mill machinery. S. P. Munroe. *Textile World* 51:1771+, 2333, 2335 Ap 8, My 13 '16

Improved construction of pickers and cards. E. A. Allen. *il Textile World* 51:2259+ My 6 '16

Machinery for bleaching, dyeing, and printing cotton fabrics. *diag Engineer* 121:250-1, 271-3, 352-4, 391-5, 469-71, 537-9; 122:26-8, 70-2, 116-17, 162-4 Mr 24-31, Ap 28, My 12, Je 9, 30, Jl 14, 28, Ag 11, 25 '16

Machinery trade analyzed. *Textile World* 51:2326+ My 13 '16

Vertical cylinder cotton opener. *il Textile World* 51:3997 S 16 '16

See also Cotton picking machines; Textile machinery

Cotton manufacture

Chinese cotton industry. *Textile World* 51:985+ F 5 '16

Cotton goods in China. R. M. Odell. *il U S Bur For & Dom Com* 107:157-89 '16

Cotton industry of Japan. C. R. Dodge. *Textile World* 51:547 Ja 15 '16

Cotton of ancient Peru. M. D. Crawford. *diag Textile World* 51:2103+ Ap 29 '16

Cotton manufacture—Continued

Raw material consumption and spindles in United States for 1915 and 1916. Textile World 51:4624 O 28 '16

See also Cotton carding; Cotton finishing; Cotton mills; Cotton spinning; Cotton weaving

Cotton manufacturers association, American. See American cotton manufacturers association

Cotton manufacturers, National association of. See National association of cotton manufacturers

Cotton mills

Electricity in cotton-goods manufacture. il Elec R & W Elec'n 68:842-5 My 13 '16

Hamilton Carhartt cotton mills, no. 2, to be completed in two years. il Textile World 51:4357+ O 7 '16

Humidity a factor in cotton picker fires. F. J. Hoxie. Textile World 51:2271+ My 6 '16

Layout and tests of an Alabama cotton mill. G. Wrigley. il Elec W 68:803-7 O 21 '16

Machine speeds in cotton mills. S. P. Munroe. Textile World 51:359-60, 979+ Ja 1, F 5 '16

Management of help in a cotton mill. C. H. Strickland. Textile World 51:5049 N 25 '16

Model cotton mill and village. il Textile World 51:3364 J1 29 '16

New plant of the Naumkeag steam cotton co., at Salem, Mass. il Eng & Contr 46:275 S 27 '16

Recent advances in cotton mill design. J. E. Sirrine. il Textile World 51:3561+ Ag 12 '16

Reinforced concrete buildings for the Naumkeag steam cotton co., Salem, Mass. il Arch & Bldg 48:119-20 J1 '16

Relation of cotton conditioning to picker fires. F. J. Hoxie. il Textile World 51:4143+ S 20 '16

Republic cotton mills, no. 2. il Textile World 51:3197+ J1 15 '16

Savings which are worth considering. Textile World 51:1143 F 19 '16

Story of the new Naumkeag, Salem, Mass. il Textile World 51:719+ Ja 15 '16

Cotton nitration. See Guncotton

Cotton picking machines

Machine that picks cotton without injuring the plant. il Sci Am 114:551+ My 27 '16

Cotton seed. See Cottonseed

Cotton sizing

Bleaching and sizing cotton duck. Textile World 51:344 Ja 1 '16

Cotton spinning

Causes of uneven yarns. Textile World 51:201+ D 18 '15

Equipment for a spinning plant. Textile World 51:1303+ Mr 4 '16

Filling wind for warp yarns. G. H. Goldsmith. Textile World 51:133, 351+, 977+ D 11 '15, Ja 1, F 5 '16

Micro-photography in cotton spinning. il Textile World 51:565, 691 Ja 15 '16

Practical ideas on spinning. W. T. McIntyre. Textile World 51:5046-7 N 25 '16

Production based on average number. Textile World 51:133+ D 11 '15

Spinning cotton by mouse power. Sci Am 115:343 O 7 '16

Cotton stalks

Paper from cotton stalks. Sci Am 115:241 S 9 '16

Cotton storage

Concrete cotton terminals and warehouses at Atlanta. diags plan Eng N 74:1190-1 D 16 '15

Cotton tariff

Cotton goods in China. R. M. Odell. il U S Bur For & Dom Com 107:131-4 '16

Cotton trade

Address of association president. A. F. Bemis. Textile World 51:4125+ S 23 '16

American cotton industry as seen by the industrial chemist. F. Dannenrth. J Ind & Eng Chem 8:75-8 Ja '16

Argentina as yarn buyer. Textile World 51:139+ D 11 '15

Available cotton supply. R. K. MacLea. Textile World 51:2053 Ap 29 '16

Confidence in values of cotton. Textile World 51:541+ Ja 15 '16

Cotton consumption of United States. R. K. MacLea. Textile World 51:19+ D 4 '15

Cotton goods export trade outlook. R. K. MacLea. Textile World 51:504+ Ja 15 '16

Cotton goods in Ceylon. R. M. Odell. U S Bur For & Dom Com 123:1-39 '16

Cotton goods in China. R. M. Odell. il U S Bur For & Dom Com 107:1-241 '16

Cotton goods in the Dutch East Indies. R. M. Odell. il map U S Bur For & Dom Com 120:1-55 '16

Cotton goods in the Straits Settlements. R. M. Odell. U S Bur For & Dom Com 115:1-57 '16

Cotton trade and the Lever bill. T. Sinclair. Textile World 51:506 Ja 15 '16

Cotton yarns record good progress in 1915. Textile World 51:549, 553, 555 Ja 15 '16

Foreign commerce in American textiles. F. A. Vanderlip. Textile World 51:2117+ Ap 29 '16

India's 1914 season. Textile World 51:84+ D 4 '15

Japanese cotton goods industry and trade. G. N. West. U S Sp Cons Rep 74:1-12 '15

Japanese 1914 statistics. Textile World 51:139 D 11 '15

Lancashire cotton industry in 1915. Textile World 51:535+ Ja 15 '16

New Bedford's successful year. Textile World 51:559, 561+ Ja 15 '16

Our China trade—have we lost it? H. Ayres. Textile World 51:503+ Ja 15 '16

Prices of raw cotton and cotton yarns from 1906 to 1915, inclusive; graphic chart. Textile World 51:553 Ja 15 '16

Prices of raw cotton and print cloths from 1909 to 1915, inclusive; graphic chart. Textile World 51:537 Ja 15 '16

Red Sea trade and its advantages. F. Kidde. Textile World 51:503 Ja 15 '16

Regulations upon importation of foreign cottons. C. J. H. Woodbury. Textile World 51:983 F 5 '16

Southern cotton mill progress. Textile World 51:533+ Ja 15 '16

Terminology

Terms used in the cotton industry; with conversion tables. W. A. G. Clark. U S Bur For & Dom Com 105:1-22 '15

Cotton waste

American-built waste puller. diag Textile World 51:895 Ja 29 '16

Cotton rag market. Metal Work 85:579 Ap 28 '16

Cotton weaving

Designs for fancy cotton shirtings. il Textile World 51:137 D 11 '15

Use of silk in New England cotton mills. il Textile World 51:977 F 5 '16

Weaving suggestions. A. D. Martin. Textile World 51:5047+ N 25 '16

Cotton yarn

Effect of various treatments on cotton yarns. Textile World 51:207 D 18 '15

Equipment for spinning cotton hosiery yarns. Textile World 51:2337+ My 13 '16

Lace yarns as made in England. S. Wakefield. Textile World 51:2335+, 2659+, 4151+, My 13, Je 3, S 23 '16

Making yarns proof against mildew. J. H. Lester. Textile World 51:1007 F 5 '16

Picking and carding. C. C. Brigman. Textile World 51:5045-6 N 25 '16

See also Cotton spinning

Cottonseed

Biochemical changes in cottonseed in storage. J. B. Rather. J Ind & Eng Chem 8:604-7 J1 '16

Analysis

Seed analysis. N. E. Katz. J Ind & Eng Chem 8:264 Mr '16

Cottonseed oil

Electricity in cotton-seed and peanut mills. il Elec R & W Elec'n 68:796-800 My 6 '16

Occurrence of azelaic acid as a product of the spontaneous oxidation of fats. B. H. Nicolet and L. M. Little. J Ind & Eng Chem 8:416-17 My '16

Cottrell process. See Electric precipitation

Couches

Cabinet work for the carpenter. P. D. Otter. diags Bldg Age 38:71-2 My '16

Coudersport, Pennsylvania

Coudersport freezing cave. E. S. Balch. Sci Am 114:663 Je 24 '16

Coulometer. See Voltmeters**Coumarin**

Derivatives of coumarin. F. D. Dodge. Am Chem Soc J 38:446-57 F '16

Coumaron resin

Coumarone resin and its uses. C. Ellis and L. Rabinovitz. J Ind & Eng Chem 8:797-801 S '16

Council Bluffs, Iowa**Water supply**

Hydrated lime pays at Council Bluffs settling basins. J. B. Thornell. il plan Eng N 76:456-7 S 7 '16

Council of national defense

Bed-rock legislation for preparedness. M. MacLaren. il Sci Am 115:351 O 14 '16

Mobilizing our industrial resources. H. E. Coffin. Eng M 51:789-97 S '16

Organization to investigate transportation facilities for military purposes. Ry Age 61:452 S 15 '16

Counter-current extraction. See Chemical extraction**Counties****Accounting**

County audits. A. L. Rawlings. J Account 22:114-21 Ag '16

Uniform accounting system for California counties. W. K. Mitchell. J Account 21:261-74 Ap '16

Country clubs**Accounting**

System of accounts for country clubs. E. T. Krach. J Account 22:270-87 O '16

Country homes

Melody farm; the country home of J. Ogden Armour, Esq., Lake Forest, Ill. P: B. Wight. il plan Arch Rec 39:97-121 F '16

Country houses

Cement-coated country house. diags plans Bldg Age 38:42-4 F '16

Country house architecture in the East. E. D. Litchfield. il plans Arch Rec 40:356-92 O '16

Country house architecture in the Middle West. P: B. Wight. il plans Arch Rec 40:290-321 O '16

Country house architecture on the Pacific coast. J: G. Howard. il plans Arch Rec 40:322-55 O '16

Country house of frame construction. il plans Bldg Age 38:42-5 Ja '16

Country house of H. H. Rogers. J. T. Boyd, jr. il plans Arch Rec 39:1-23 Ja '16

Country house of Ormond G. Smith, esq., Oyster Bay, L. I. D. H. Fessenden, il plans Arch Rec 40:114-27 Ag '16

Northridge Farm; estate of E. W. Russel at Greenwich, Conn.; views and plan. Arch & Bldg 47:422a N '15

Odd jobs of concrete about a country place. W: Main. il Concrete 8:211-13 My '16

Plan of residence and grounds of George B. Montgomery, Amherst Estates, Buffalo, N. Y. Arch Rec 39:49-52 Ja '16

Plumbing equipment of small country house. plan Metal Work 86:464-5 O '16

Sanitary equipment of a country estate, Southold, Long Island. il diags plans Metal Work 85:313-15 Mr 3 '16

Small country house of five rooms; a frame building with exterior of stucco on metal lath. il diags plans Bldg Age 38:42-5 My '16

Three Connecticut country houses. D. H. Fessenden. il plans Arch Rec 40:402-17 N '16

Two country houses at Southampton, L. I. J: T. Boyd. il plans Arch Rec 39:197-211 Mr '16

See also Architecture, Domestic; Bungalows; Cottages; Country homes

Couplers. See Car couplings**Couplings**

Cutler-Hammer extensible coupling for mill drives. il diag Elec R & W Elec'n 69:304 Ag 12 '16; Elec W 68:337-8 Ag 12 '16; Iron Age 98:350 Ag 17 '16; Iron Tr R 59:373 Ag 24 '16

Flexible magnetic coupling built like an accordion. il Sci Am 115:442+ N 11 '16

Thermoid disk coupling replaces steel. diags Automobile 35:820 N 9 '16

See also Car couplings; Hose couplings; Joints

Court houses

Albany county court house; views. Arch & Bldg 48:153-6, pl 46-7 S '16

Children's court building, New York. Arch & Bldg 48:15, pl 6 Ja '16

Court house and post office building, Augusta, Ga.; views. Arch & Bldg 48:13, pl 2 Ja '16

New Haven (Conn.) county court house; views and plans. Arch Rec 39:360-7 Ap '16

Planning of the Fulton county court house, Atlanta, Ga. il plans Arch & Bldg 48:23, 25-8 F '16

United States post office and court house, Denver, Colo. il Arch & Bldg 48:54, pl 22-25 Ap '16

Courtesy

Killing complaints with courtesy. L. J. Wilhoite. Elec W 67:102-3 Ja 8 '16

Cowl boards. See Automobiles—Cowl boards**Crane company, Chicago**

Hot-water heating at plant of the Crane co., Chicago. T: Wilson. il diags Power 44:370-3, 411-13 S 12-19 '16

Cranes, derricks, etc.

Application of cranes in the foundry. T. E. Austin. il Iron Age 97:1251-4 My 25 '16

Big stack falling from broken boom tests concrete floor. H: Blood. il diag Eng N 76:618-20 S 28 '16; Same cond. Eng Rec 74:507 O 21 '16

Bull-wheel adapted to building-erection derricks. plan Eng Rec 73:91 Ja 15 '16

Byers auto-crane. il diag Munic J 41:554-5 N 2 '16

Contractor's traction derrick. il diag Eng N 76:507-8 S 14 '16

Cranes for the machine shop and foundry. H. M. Lane. diags Iron Age 96:246-8 Jl 29 '15; Same. Eng & Contr 44:476-7 D 22 '15

Cranes handle drop-bottom cars for filling. il Eng N 75:658-9 Ap 6 '16

Electric crane operation; abstract. E. Luft. diag Elec W 68:820-1 O 21 '16

Electric cranes in the steel mill. H. E. Kendall. il diag Iron Tr R 58:242-4 Ja 27 '16

Indicating crane signal. diags Elec W 67:616 Mr 11 '16

Light traveler straddles reservoir wall to handle forms. il Eng Rec 74:90 Jl 15 '16

Locomotive crane put to many uses on one job. il Eng Rec 72:801 D 25 '15

Method of depositing material by derrick beyond reach of boom. M. A. Milliff. diags Eng & Contr 45:110 F 2 '16; Abstract. Eng N 75:175-6 Ja 27 '16

Portable type all-steel floor crane. il Iron Age 97:206 Ja 20 '16

Power supply for traveling crane. Elec R & W Elec'n 69:76-7, 168 Jl 8, 22 '16

Selection of electrical apparatus for cranes. R. H. McLain and J. A. Jackson. il diags Gen Elec R 19:506-17 Je '16

Self-propelling grab bucket crane excavator and unloader. il Eng & Contr 46:158-9 Ag 16 '16

Steam shovels and locomotive cranes. L. K. Silcox. Ry Age 60:914-15 Ap 21 '16

Stresses in 50-ton steel derrick reduced by elimination of goosenecks. il diags Eng Rec 73:113-14 Ja 22 '16

Tower derricks for erecting steel frames. diags Eng N 76:802 O 26 '16

Tractive effort of overhead travelers; abstract. G. H. Boot. diags Am Soc M E J 38:1032 D 16

Traveling tower cantilever crane for yard service. il diags Eng N 75:1124 Je 15 '16

20-ton derrick with roller-bearing mast. il diags Eng N 74:1132-3 D 9 '15

United portable crane. il Mach 22:434 Ja '16

Unusual and effective form of pier derrick. H. Vanderhoof. il Eng & Contr 45:230 Mr 8 '16

Walking-beam traveler reaches over lock walls. il Eng Rec 73:124 Ja 22 '16

Cranes, derricks, etc.—Continued

Zinke crane without any chains. *il* Iron Age 96:1305 D 2 '15

See also Hoisting machinery

Cost of operation

Economics of material handling in manufacturing plants. R. Trautschold. *il* Eng M 51: 368-80, 528-36 Je-Jl '16

Safety devices

How to secure safety in the shop. F. R. Hutton. *il* Iron Tr R 58:818-20 Ap 13 '16

Proper care of cranes and hoists. H. A. Shultz. Iron Tr R 58:867-9 Ap 20 '16

Proposed code of safety standards for operation of cranes. Am Soc M E J 38:895-7 N '16

Removing causes of crane accidents. F. H. Elam. Iron Tr R 59:828-30 O 26 '16

Safeguarding of cranes. *il* Am Ind 16:sup1-4 N; sup1-4 D '15; sup1-4 Ja; sup1-4 F; sup1-4 Mr '16

Safety code for cranes. M. W. Alexander. Am Soc M E J 38:1002 D '16

Craniology

Long-heads, square-heads, and short-heads. Sci Am S 81:211 Ap 1 '16

Crank cases

Milling Buick aluminum crank-cases. E. K. Hammond. *il* diags Mach 22:543-8 Mr '16

Crankpins

Design of hollow crank pins. C. W. Benica. *diag* Ry Mech Eng 90:66-7 F '16

Crankshafts

Design of crankshafts for high speed engines. P. M. Heldt. *diags* Horseless Age 36:498-501, 536-7+ D 1-15 '15; Abstract. Am Soc M E J 38:94-5 Ja '16

Disastrous experiences with large center-crank shafts. L. Illmer. Am Soc M E J 38: 317-18 Ap '16; Same. Iron Tr R 58:822 Ap 13 '16

Permissible crankshaft inaccuracy. A. L. Clayden. Automobile 35:239 Ag 10 '16

Proving crankshaft rigidity. *il* Automobile 34: 897 My 18 '16

Crash (textile fabric)

Finishing crashes. Textile World 51:285+ D 25 '15

Crater Lake national park

Description. M. Daniels. *il* Am For 22:586-92 O '16

Creameries

Construction of a sanitary and fireproof concrete creamery building. *il* plan Concrete 8:276 Je '16

Design of disposal plant for creamery or cheese factory wastes. A. E. Kimberly. *plan* Eng & Contr 46:238-9 S 13 '16

Disposal of creamery waste. Metal Work 84: 745 D 10 '15

Credit

Credit, business qualifications and success. Metal Work 85:562 Ap 21 '16

Credit conditions in South American countries. J. Matthews. J Account 22:443-50 D '16

Credit efficiency a means for the prevention of bad accounts. W. B. Parker. Elec R & W Elec'n 68:685 Ap 15 '16

Credit efficiency a paying proposition. W. B. Parker. Dom Eng 77:43 O 14 '16

Credit evil needing correction. Metal Work 85: 509 Ap 14 '16

Export trade suggestions. U S Bur For & Dom Com misc ser 35:44-54 '16

Foreign credit conference. Am Ind 16:27-8 Je '16

Handling customer credits; policy of the Detroit Edison company. R. R. Brown. Elec W 68:135-6 Jl 15 '16

Limit of credit based on commercial reports. Metal Work 85:589-90 Ap 28 '16

Master contractors' protective association. Metal Work 85:540 Ap 21 '16

Mercantile agencies must deliver the goods. E. J. Buckley. Metal Work 84:845 D 31 '15

Talk on credits and collections. W. A. Fink. Dom Eng 74:7 Ja 1 '16

Textile credits in South America. Textile World 51:1147+ F 19 '16

Various phases and angles of credit insurance. W. B. Parker. Elec R & W Elec'n 69: 208 Jl 29 '16

What is a confirmed credit? P. F. Donald. Am Ind 16:19 D '15

See also Acceptances; Agricultural credit; Banks and banking; Debt

Cremation

Cremation versus burial. Sci Am 114:216 F 26 '16

Crematorium

Prize competition. *il* Am Inst Arch J 4:350-3 Ag '16

Creosote

Creosote importation. Ry Age 60:492 Mr 17 '16

Creosote which would meet highest specifications and requirements could be produced in this country without difficulty. Am Gas Light J 105:86 Ag 7 '16

Davis spot test in the preliminary examination of creosote oils. Eng & Contr 46:206-7 S 6 '16

Determining the purity of creosote. Ry Age 61:362 S 1 '16

Foreign creosote oil situation. G. A. Lembeke. Ry Age 60:123-4 Ja 21 '16; Same. Munic Eng 50:53 F '16; Abstract. Elec Ry J 47:166 Ja 22 '16

Marine borers from wood preserver's standpoint. L. F. Shackell. Ry Age 60:508-10 Mr 17 '16

Mixing tar with creosote. Ry R 58:827-8 Je 10 '16

Oil specification for creosoted wood block. H. von Schrenk. *il* Eng N 75:204-6 F 3 '16

Proper oil for creosoting wood blocks for paving. P. C. Reilly. *il* Ry R 58:139-46 Ja 22 '16

Simple method of detecting tar adulteration of creosote oils. Ry R 59:352 S 9 '16

Specifications for treating wood with creosote. K. Redman. Eng N 75:607-8 Mr 30 '16

See also Wood preservation

Creosoted wood. See Wood preservation**Cretonne**

Evolution in printing. *il* Textile World 51:1945+ Ap 22 '16

Cribs

Buffalo barge canal terminal. *diags* plan Eng N 74:1124-5 D 9 '15

Concrete and timber cribs accurately placed for Vancouver wharf. R. M. Fripp. *il* diags Eng Rec 74:111-12 Jl 22 '16

Cribs, Concrete

Twelve 2000-ton cribs for Welland canal completed. *il* Eng Rec 73:220 F 12 '16

2500-ton concrete cribs are built and launched in a shipyard. *il* diags Eng Rec 73:73-4 Ja 15 '16

Crime and criminals

See also Convict labor

Cripple Creek, Colorado

Composition of the rock gas of the Cripple Creek mining district, Colorado. G. A. Burrell and A. W. Gauger. Am Inst Min E Bul 113:843-63 My '16; Discussion. 120:2211-13 D '16

Cripples

Motion study for the crippled soldier. F. B. Glibreth. *il* Am Soc M E J 37:669-73 D '15; Same. Sci Am S 80:402-3 D 25 '15; Discussion. Am Soc M E J 37:673-5 D '15

Training of maimed soldiers. *diags* Engineer 121:472-3 Je 9 '16

War cripples in Austria and Germany. Engineer 121:64-5 Ja 21 '16

See also Artificial limbs

Critical point

Accurate determination of critical point during annealing, patented by R. B. Fehr. *diag* Met & Chem Eng 15:264-5 S 1 '16

Critical constants of normal butane, isobutane and propylene and their vapor pressures at temperatures between 0° C. and 120° C. F. M. Seibert and G. A. Burrell. *diag* Am Chem Soc J 37:2683-91 D '15

Critical speeds. See Speed**Crops**

Principles of crop production. E. J. Russell. *il* Sci Am S 82:28-31 Jl 8 '16

- Cross-ties.** See Railroad ties
- Crossings, Grade.** See Grade crossings
- Crossings, Railroad.** See Grade crossings; Railroads—Crossings
- Crows**
Crows and jays. *il* Am For 22:610-11 O '16
- Crucible furnaces**
Test of a surface combustion furnace. E. Schramm and J. R. Cain. *il* diags J Ind & Eng Chem 8:361-5 Ap '16
- Crucibles**
Crucible justice. Metal Ind n s 14:344-5 Ag '16
Crucible preserver; feurit. Metal Ind n s 14:352 Ag '16
Crucible situation in the United States. Iron Age 97:475 F 24 '16; Same. Foundry 44:106 Mr '16; Same. J Ind & Eng Chem 8:281-2 Mr '16; Same. Met & Chem Eng 14:287-8 Mr '16; Same. Metal Ind n s 14:132 Mr '16; Same abr. Iron Tr R 58:505 Mr 2 '16
Pertinent pointers for the care of crucibles. Foundry 44:28 Ja '16
Saving a crucible. *il* diag Metal Ind n s 14:396-8 S '16
See also Foundry practice
- Crucibles, Platinum**
Further experiments on the volatilization of platinum. G. K. Burgess and R. G. Waltenberg. J Ind & Eng Chem 8:487-90 Je '16
- Crushed stone**
Crushed stone plant for tunnel muck. *il* Eng Rec 73:611 My 6 '16
- Crushing**
Kick vs. Rittinger: an experimental investigation in rock crushing, performed at Purdue university. A. O. Gates. *il* diags Am Inst Min E Bul 105:2023-51 S '15; Discussion. 110:515-20 F '16
Quarries for Kensico dam; cross-section and plan of large temporary crushing plant. W. F. Smith. *il* Eng N 76:250-3 Ag 10 '16
See also Crushing machinery; Gold milling; Stamp mills
- Crushing machinery**
Chilean mills versus stamps. A. McClaren. Eng & Min J 101:15-16 Ja 1 '16
Comparative test of the Marathon, Chilean and Hardinge mills. F. C. Blickensderfer. *il* flow sheet Am Inst Min E Bul 116:1333-48 Ag '16; Discussion. 120:2184-97 D '16
Crushing and grinding machinery. Eng & Min J 102:60-4 Jl 1 '16
Development of a modern ball-mill. *il* diag Met & Chem Eng 14:285-7 Mr 1 '16
Disc crushers in use at the intermediate stage. *il* Met & Chem Eng 15:105-6 Jl 15 '16
Lovett grinding mill. *il* Eng & Min J 102:825 N 4 '16
Manganese vs. chrome-steel roll shells. F. E. Johnson. Eng & Min J 101:907 My 20 '16
Portable crusher eliminates stone hauling. D. P. Falconer. *il* Elec Ry J 47:277 F 5 '16
Simplifying the ore-crushing process. Met & Chem Eng 14:230 F 15 '16
See also Hardinge mill; Stamp mills; Tube mills
- Crustacea**
Production of light by animals; the luminous crustaceans. U. Dahlgren. *il* J Fr Inst 181:805-43 Je '16
- Cryoscopy**
Cryoscopic measurements at low temperatures. H. S. Reid and D. McIntosh. *il* diags Am Chem Soc J 38:615-25 Mr '16
- Cryptograms.** See Ciphers
- Cryptography.** See Ciphers
- Crystallization**
Effect of dissolved substances on the velocity of crystallization of water. J. H. Walton and A. Brann. Am Chem Soc J 38:317-30, 1161-6 F, Je '16
- Crystallography**
Chemical gardens. S. L. Bastin. *il* Sci Am S 81:388 Je 17 '16
Constitution and fundamental properties of solids and liquids. I. Langmuir. Am Chem Soc J 38:2221-95 N '16
- Crystal twinning by direct strain. C. A. Edwards. *il* diags Iron Tr R 58:341-5 F 10 '16; Abstract. Am Soc M E J 38:264-5 Mr '16
- Crystallization of calcium tartrate. F. D. Chattaway. *il* Am Chem Soc J 38:2519-22 N '16
- Cultivating stereoscopic sight. W. M. Brodie. Eng & Min J 102:743-4 O 21 '16
- Growth of crystals under pressure. Sci Am S 82:293 N 4 '16
- Observations on certain types of chalcocite and their characteristic etch patterns. C. F. Tolman, jr. 10 pls Am Inst Min E Bul 110:401-33 F '16; Discussion. 113:895-900 My '16
- Paragenesis of certain sulphide intergrowths. W. L. Whitehead. *il* Econ Geol 11:1-13 Ja '16
- Roentgen rays and crystal structure. *il* diag Met & Chem Eng 15:35-8 Jl 1 '16; Same. Sci Am S 82:354-5 D 2 '16
- Tungsten-molybdenum equilibrium diagram and system of crystallization. Z. Jeffries. Am Inst Min E Bul 115:1235-6 Jl '16
- X-rays and crystal structure, with special reference to certain metals. W. H. Bragg. Engineer 121:424 My 19 '16; Same. Sci Am S 82:153 S 2 '16; Same. Met & Chem Eng 14:694-5 Je 15 '16
See also Crystallization; Metallography
- Cuba**
Industries and resources
See also Copper mines and mining—Cuba; Iron mines and mining—Cuba; Mines and mineral resources—Cuba
- Cubic performance.** L. C. Frank. *il* Eng Rec 72:751-2 D 18 '15
- Culm**
Burning pulverized culm at the mines. R. Trautschold. Coal Age 10:103 Jl 15 '16
- Culverts**
Blaw adjustable rectangular culvert form. *il* Good Roads n s 12:94 Ag 5 '16
Building culvert for 150-ft. fill. *il* Eng N 76:850 N 2 '16
Catchbasins and culverts on county roads. *il* diags Eng N 76:209 Ag 3 '16
Combining a bridge abutment with a culvert. I. W. Harrison. *il* diags Eng N 75:172 Ja 27 '16
Concrete culvert pipe for cattle passes. *il* Ry Age 59:1149 D 17 '15
Corrugated culvert pipes tested under a sand bed. G. L. Fowler. *il* diags Elec Ry J 47:914-16, 964-5 My 13-20 '16; Same cond. Ry Age 60:1073-7 My 19 '16; Same cond. Eng Rec 73:668-9, 706-7 My 20-27 '16; Abstract. Eng N 75:958 My 18 '16
Culvert under street with car tracks. *il* Eng N 75:472 Mr 9 '16
Design of flat arch corrugated iron culverts for use under paved streets. J. A. Griffin. *il* diags Eng & Contr 46:297-9 O 4 '16
Formula for maximum moment in the side walls of box culverts. W. S. Todd. *il* Eng & Contr 46:182 Ag 23 '16
Iron culverts used for arch construction in Arizona. *il* Eng N 76:330 Ag 17 '16
Load test of corrugated iron culvert. *il* Munic Eng 51:161 O '16
Reinforced-concrete pipe used for railway culverts. *il* diags Eng N 76:592-3 S 28 '16
Spillway culverts. *il* diags Eng N 75:755 Ap 20 '16
Two culvert foundations. *il* diags Eng N 75:128-9 Ja 20 '16
Types of concrete culverts for economical highway service. *il* diags Concrete 9:7-9 Jl '16
See also Bridges
- Cost**
Costs of installing corrugated iron culverts. E. G. Marshall. Eng & Contr 45:583 Je 28 '16
Monolithic concrete culverts at low cost in New York state. Concrete 8:91 F '16
- Cumberland road**
Old National road in Pennsylvania. J. R. Wilson. *il* Good Roads n s 11:69-71 F 5 '16
- Cumin**
Cumin—a crop valuable for the small diversified farm. Sci Am S 82:327 N 18 '16

Cupola furnaces

- Construction of a small cupola. W. J. Keep. Foundry 44:309 Ag '16
- Crude oil in the cupola. B. Stoughton. Iron Age 97:376 F 10 '16
- Cupola tuyere area. W. J. Keep. Foundry 44:464-5 N '16
- Cupola which preheats the blast. diags Iron Age 97:1496 Je 22 '16
- Cutting of the cupola lining. W. J. Keep. Foundry 44:40-1 Ja '16
- Foundry by-product coke. G. A. T. Long. Iron Age 98:771 O 5 '16
- How crude oil is used for cupola melting. B. Stoughton. diag Foundry 44:303-4 Ag '16; Excerpts. Iron Age 97:232 Ja 20 '16
- Information on the operation of the cupola. W. J. Keep. Foundry 44:483 N '16
- Melting gray iron in the Baby Bunting cupola. F. West. il Foundry 44:137-8 Ap '16
- Melting in a small cupola. W. J. Keep. Foundry 44:114-15 Mr '16
- Pre-heated blast cupola; abstract. J. A. Parsons. Am Soc M E J 38:753-4 S '16
- Relation of air supply to cupola blowing; abstract. J. A. Shorey. Iron Age 97:1445 Je 15 '16
- Safety kinks for cupolas. J. S. Eagan. il Foundry 44:114 Mr '16
- Use of borings in cupola operations. J. A. Murphy. Iron Age 98:700-1 S 28 '16; Same. Foundry 44:453-4 N '16; Discussion. Iron Age 98:701 S 28 '16; Same. Foundry 44:405 O '16
- See also Foundry practice

Cuprous chloride

- Reduction of As^v to Asⁱⁱⁱ by cuprous chloride and the determination of arsenic by distillation as arsenic trichloride. R. C. Roark and C. C. McDonnell. diag J Ind & Eng Chem 8:327-31 Ap '16

Cups, Collapsible

- Collapsible aluminum cup. J. P. Sheehy. il diags Metal Ind n s 13:489-92 D '15

Curbs

- Curb and gutter construction—1916; tabulation. Munic Eng 50:151-2 Ap '16
- Curbs and sidewalks; some practical and aesthetic considerations in their design and location. M. E. Chamberlain. Eng & Contr 45:336 Ap 5 '16
- Methods of fixing curb and sidewalk grades at street intersections on steep gradients. J. Wilson. plan Eng & Contr 45:346-7 Ap 12 '16
- Sidewalk, curb and gutter units. Munic J 40:898 Je 29 '16
- Sidewalks, curbs and gutters built in 1915; tabulation. Munic J 40:172-81, 404 F 3, Mr 23 '16

Curbs, Concrete

- Combined concrete curb and gutter. diag Eng N 75:328 F 17 '16
- Combined sidewalk curb and storm water sewer. Ann Arbor, Mich. il Eng & Contr 46:131 Ag 9 '16
- Concrete pavement tamped by rolling. P. E. Clark. il diag Good Roads n s 11:105-7 Mr 4 '16
- Integral curb in East Milwaukee, Wis. il diags Munic Eng 51:21-3 J 1 '16
- Monolithic concrete curb and pavement in Arcade, N. Y. E. J. Doyle. il diags Eng N 75:459-61 Mr 9 '16
- Simple integral curb form built with bent steel plates. diag Eng Rec 73:749 Je 3 '16

Curie's law

- Theories of magnetism. S. Dushman. Gen Elec R 19:670-3 Ag '16

Currents, Alternating. See Electric currents, Alternating**Currents, Electric. See Electric currents****Curtains. See Car curtains****Curve plotting**

- Cyclo-harmonograph; an instrument for drawing large classes of important higher plane curves. R. E. Moritz. il diags Sci Am S 82:84-5 Ag 5 '16

- Design charts for open flumes with catenary section. E. L. Robinson. Eng N 75:566-7 Mr 23 '16
- Differentiator; an instrument for laying out curves in engineering problems. A. Elmen-dorf. il diag Sci Am S 81:100-1 F 12 '16
- Fitting equations to plotted curves; abstract. J. B. Kommers. Am Soc M E J 38:187 F '16
- Laying out a curve in isometric projection. diags Mach 23:64 S '16
- Visits of inspector Brown. J. E. Terman. Power 44:691-2 N 14 '16

Curves

- Mathematics of vertical curves. L. C. Jordan. Eng & Contr 45:523-4 Je 7 '16
- Method of figuring vertical curves adapted to municipal practice. C. F. Meyer. Eng & Contr 46:23 J 5 '16
- 32-element harmonic synthesizer. D. C. Miller. bibliog il diags J Fr Inst 181:51-81 Ja '16
- See also Catenary; Circles; Curve plotting; Railroads—Curves and turnouts

Cut outs. See Electric protective apparatus**Cutch**

- Cutch for dyeing. Textile World 51:1963 Ap 22 '16

Cutting machines

- Battery of 6-in. cutting-off machines. il Iron Age 96:1405 D 16 '15
- Cutting and drawing compounds and oils. Mach 22:591 Mr '16
- Cutting machine that increases the value of light metal scrap. Sci Am 115:83 J 1 22 '16
- Efficient recessing tool. D. A. Hampson. diag Mach 22:695-6 Ap '16
- Esco grooving machine. il Mach 22:906-7 Je '16
- Espen-Lucas shell bar cutting-off machine. il Mach 22:907 Je '16
- Geared head cutting-off machine manufactured by Etna machine co. il Iron Age 98:826-7 O 12 '16
- Improved bar cutting-off machine. il diag Iron Age 97:1434 Je 15 '16
- Machine for cutting powder train groove. D. Baker. diags Mach 22:787-8 My '16
- Oil grooving fixture. diags Mach 22:697-8 Ap '16
- Original design of flue cutting machine. C. W. Schane. diag Ry R 58:247 F 12 '16
- Scrap-cutting machine, used in Germany for preparing turnings for packing. R. G. Skerrett. diags Iron Age 97:605 Mr 9 '16
- Southwark cutting-off machines. il Mach 22:341 D '15; Iron Age 97:315 F 3 '16; Iron Tr R 58:296 F 3 '16
- Tool for cutting test bars. G. Luck. diag Mach 22:333-4 D '15
- Under-cutting machine with finger guard. D. Baker. diags Mach 22:866 Je '16
- See also Drilling and boring machinery; Gear cutting; Gear cutting machines; Grinding wheels; Machine tools; Milling machines; Notching machines; Paper cutting machines; Pipe cutters; Rail cutting; Shears; Thread cutting machines

Cutting machines (for textiles)

- Dumore electric cloth cutter for tailors and dressmakers. il Elec R & W Elec'n 68:521 Mr 18 '16; Elec W 67:784 Ap 1 '16
- Electric cloth cutter, by Eastman machine co. il Elec W 68:39 J 1 '16

Cutting of metals. See Metal cutting**Cuttle fish. See Calamary oil****Cuyuna range. See Iron mines and mining—Minnesota****Cyanamid**

- Fixation of atmospheric nitrogen. R. G. Skerrett. il Iron Age 97:359-62 F 10 '16
- Production of ammonia from cyanamid. W. S. Landis. Met & Chem Eng 14:87-90 Ja 15 '16; Same. J Ind & Eng Chem 8:156-60 F '16

Cyanide plants

- Cyanide plant of the Baker mines co., Cornucopia, Oregon. R. M. Keeney. flow sheet il Met & Chem Eng 13:947-53 D 15 '15
- Cyaniding by continuous decantation at two Nevada silver mills. il flow sheets Met & Chem Eng 14:435-40 Ap 15 '16

Cyanide plants—Continued

Nevada Packard mill. R. B. Todd. *il Eng & Min J* 101:247-8 F 5 '16

Cyanide poisoning

Slow cyanide poisoning. *Eng & Min J* 101:141, 444-5, 698 Ja 15, Mr 4, Ap 15 '16

Cyanide process

Blast furnace smelting of cyanide precipitate. J. Chauvenet. *Met & Chem Eng* 14:96-9 Ja 15 '16

Counter-current decantation. L. B. Eames. flow sheet *Am Inst Min E Bul* 120:2087-2101 D '16

Counter-migration of pulp and solution in cyanidation and acid leaching. B. MacDonald. *il Met & Chem Eng* 14:283-4 Mr 1 '16

Cyanide consumption on the Rand. H. A. White. *Met & Chem Eng* 14:107 Ja 15 '16

Cyanide process applied to antimonial ores. *Eng & Min J* 101:224 Ja 29 '16

Cyaniding clayey ore at the Buckhorn gold mine. P. R. Cook. flow sheet *diags Am Inst Min E Bul* 117:1555-63 S '16

Cyaniding copper-bearing ores. B. W. Gaebele. *Eng & Min J* 102:22-3 Jl 1 '16

Effect of heat in cyaniding gold ores. E. A. Wraight. *Met & Chem Eng* 14:223 F 15 '16

Effect of lead salts in cyanide treatment; abstract. H. R. Edmands. *Met & Chem Eng* 15:212-13 Ag 15 '16

Electrolysis of alkaline solutions of potassium sulphocyanate. W. J. Crook, L. E. Booth and A. Thiel. *Met & Chem Eng* 14:587-91 My 15 '16

Electrolytic precipitation from cyanide solutions. G. H. Clevenger. *Eng & Min J* 102:579-82 S 30 '16

Flotation and cyanidation. E. A. Hersam. *Met & Chem Eng* 14:675-6 Je 15 '16

Flotation and cyanidation. G. H. Clevenger. *Met & Chem Eng* 14:674-5 Je 15 '16

Flotation and cyanidation; symposium. *Met & Chem Eng* 14:569-72 My 15 '16

Flotation replaces cyanide. R. W. Smith. flow sheet *Eng & Min J* 101:142-4 Ja 15 '16

Flotation versus cyanidation. J. A. Pearce. *Met & Chem Eng* 14:706-8 Je 15 '16

Gold dissolution in cyanide. *Eng & Min J* 101:356 F 19 '16

Holder for precipitate bags. *il Eng & Min J* 101:326 Mr 18 '16

Hydrolysis of cyanide and value of protective alkali. J. Moir. *Met & Chem Eng* 14:163 F 1 '16

Hydrometallurgical treatment of complex gold and silver ores. G. H. Clevenger. *Met & Chem Eng* 14:206-10 F 5 '16

Improved process of cyaniding to recover not only precious metals but also base metals, patented by H. R. Layng. *Met & Chem Eng* 15:104 Jl 15 '16

Laboratory cyaniding agitator. R. B. Ladoo. *il Eng & Min J* 101:440 Mr 4 '16

Laboratory method for determining the capacities of slime-settling tanks. H. S. Coe and G. H. Clevenger. *il diags Am Inst Min E Bul* 111:597-625 Mr '16; Summary. *Met & Chem Eng* 14:398-9 Ap 1 '16

Liberty Bell methods of precipitate refining. A. J. Weinig. *Am Inst Min E Bul* 111:651-62 Mr '16; Excerpts. *Met & Chem Eng* 14:337-8 Mr 15 '16

Method of expressing protective alkalinity. H. H. Howry. chart *Eng & Min J* 102:139 Jl 15 '16

Mining and milling practice at Santa Gertrudis. H. Rose. *diag plan Am Inst Min E Bul* 116:1314-30 Ag '16; Same. *Eng & Min J* 102:247-53, 263-4 Ag 5 '16; Abstract. *Met & Chem Eng* 15:598-9 N 15 '16; Discussion. *Am Inst Min E Bul* 120:2197-200 D '16

Nevada Wonder mill. A. C. Daman. *il Eng & Min J* 102:927-8 N 25 '16

Prevention of hydrolysis in cyanide solutions. H. M. Leslie. *Met & Chem Eng* 14:107 Ja 15 '16

Relation of clay to ore-dressing and cyanidation. A. W. Allen. *Met & Chem Eng* 14:245-6 Mr 1 '16

Sodium-amalgam precipitant for cyanide solutions. *diags Met & Chem Eng* 14:220 F 15 '16

See also Cyanide plants; Gold metallurgy

Cost

Cyaniding costs at Douglas Island, Alaska. *Eng & Min J* 102:24 Jl 1 '16

Operating costs at the Liberty Bell mill, Telluride, Colo. *Eng & Min J* 102:3-4 Jl 1 '16

Cyanoacetic acids

Alkyl cyanoacetic acids. J. C. Hessler. *Am Chem Soc J* 38:909-16 Ap '16

Cyanogen

Chester gas company establishes cyanogen department. *Am Gas Light J* 105:182 S 18 '16

Quantity determination of Prussian blue. G. Anderson. *Gas Age* 38:546-7 N 15 '16

Cyanogen compounds

Production of cyanogen compounds, an electric furnace process patented by A. R. Lindblad. *diag Met & Chem Eng* 15:215 Ag 15 '16

Cyclo-harmonograph

Cyclo-harmonograph; an instrument for drawing large classes of important higher plane curves. R. E. Moritz. *il diags Sci Am S* 82:84-5 Ag 5 '16

Cycloids

Laying out cycloidal pump impellers. G. Luck. *diags Mach* 22:589-90 Mr '16

Cyclopentadienes

Studies in the cyclopentadiene series; the formation of cyclopentadienodihydropyridazines. W. J. Hale. *Am Chem Soc J* 38:2535-45 N '16

Cylinder packing. See Packing**Cylinders**

Formula for obtaining the volume and lateral or convex surface of an ungula of right, regular cylinder. H. B. Wrigley. *diags J Ind & Eng Chem* 8:522-3 Je '16

Gauging of storage tanks. K. B. Howell. *J Ind & Eng Chem* 8:286-7, 430-3 Mr, My '16

Gauging of storage tanks. R. L. Ogden. *J Ind & Eng Chem* 8:58-9 Ja '16

Weight of cast-iron hollow cylinders. W. L. Tryon. *diag Mach* 22:424 Ja '16

Cylinders (engines)

Bronze alloy cylinder. L. G. Nilson. *diag Automobile* 34:595 Mr 30 '16

Cutting down cylinder oil. S. F. Wilson. *Power* 43:411 Mr 21 '16

Cylinder lubrication question. *Power* 43:447-8 Mr 28 '16

Efficiency in production of automobile cylinders. *il Foundry* 44:253-62 Jl '16; Same. *Iron Tr R* 59:409-18 Ag 31 '16

Lubrication of bearings and cylinders. F. L. Fairbanks. *diags Power* 42:805-8 D 7 '15; Abstract. *Am Soc M E J* 38:186-7 F '16

Lubrication of cylinders and bearings. G. J. Tropper. *Power* 43:84-5 Ja 18 '16

Lubrication of poppet-valve engines. B. V. Nordberg. *Power* 44:600 O 24 '16; Same. *Eng N* 76:808-9 O 26 '16

Making a cylinder head pattern. E. W. Wallbank. *diags Foundry* 43:490 D '15

Making the pattern for a piston valve cylinder. D. Gordon. *diags Foundry* 44:267-72 Jl '16

Oil in engine cylinders. *Eng N* 76:663 O 5 '16

Steam-cylinder lubrication. E. B. Kellogg. *Power* 44:176 Ag 1 '16

See also Pistons

Cymene-monocarboxylic acid

Synthesis on *p*-cymene 2-monocarboxylic acid and of *p*-cymene 3-monocarboxylic acid, together with certain of their derivatives. M. T. Bogert and J. R. Tuttle. *Am Chem Soc J* 38:1349-68 Jl '16

Cypress

Bald cypress; identification and characteristics. S. B. Detwiler. *il map Am For* 22:577-81 O '16

Commercial uses of cypress. *il Am For* 22:581-5 O '16

Decorative and enduring qualities of cypress. *Bldg Age* 38:23-4 S '16

Making hand-rived cypress shingles. *il Bldg Age* 38:65-6 N '16

Tree of legend and romance; cypress in California. M. Daniels. *il Am For* 22:76-81 F '16

D

Dairy barns. See Barns and stables

Dairy products

Use of electric power in dairy plants. *il Elec R & W Elec'n* 69:881-2 N 18 '16

See also Butter; Cheese; Milk

Dairying

Bringing scientific methods to the dairy of to-day. I. J. Mathews. *il Sci Am* 115:367+ O 21 '16

See also Butter; Cheese; Milk coolers

Dallas, Texas**Railroads**

Belt line is proposed as solution of Dallas grade-crossing problem. J. F. Wallace. maps *Eng Rec* 72:722-5 D 11 '15

Elimination of grade crossings in Dallas; report. map *Ry Age* 59:1087-8 D 10 '15

New Union passenger facilities at Dallas. *il plans Ry Age* 61:889-94 N 17 '16

Rapid transit

Dallas railway completes seven-track interurban terminal. E. T. Moore. *il plans Elec Ry J* 48:524-7 S 23 '16

Sanitary affairs

Work of the Dallas department of public health. *Eng N* 75:465 Mr 9 '16

Daly, Marcus, 1842-1900

Another engineer's life. D. W. Brunton. *Eng M* 50:782-3 F '16

Dam failures

Analysis of the failure of an earth-fill dam.

G. Sterling. *il map Eng N* 75:56-61 Ja 13 '16

Are rock-fill dams safely designed?—what failure of lower Otay dam teaches. G. S. Binckley. *Eng Rec* 73:769-70 Je 10 '16

California floods wreck Otay rock-fill dam. *il diags map Eng Rec* 73:225-8 F 12 '16

Can rock-fill dams stand up under overflow. *Eng N* 75:473-4 Mr 9 '16

Dam fails for third time at Schenectady. *il Eng N* 76:817 O 26 '16

Failure of diversion dam on Salt river project; report by board of inspecting engineer. *il diag plan Eng N* 75:974-5 My 25 '16

Failure of the lower Otay dam. R. A. Silent. *il Eng N* 75:334-6 F 17 '16

Foundation failures of various types of dams; tabulation. C. M. Saville. *Eng N* 75:1235 Je 29 '16

Irrigation headworks repair and dam failure. W. G. Bligh. *diags Eng N* 75:1070-2 Je 8 '16

Lake Toxaway earth dam fails. *Eng N* 76:331 Ag 17 '16

Lower Otay dam failure. F. L. Sellew. *Eng N* 75:909-10 My 11 '16

Moose Jaw dam failure followed sudden river rise. *il Eng Rec* 73:667 My 20 '16

More proof of need for supervision of dams. R. Bennett. *Eng Rec* 74:357-8 S 16 '16

More trouble at Austin dam. *il Eng N* 75:636-7 Ap 6 '16

Otay dam failure. G. Cromwell. *Eng N* 75:717-18 Ap 13 '16

Otay rock-fill dam failure. C. W. Baker. *il map Eng N* 75:236-9 F 3 '16

Overstopped earth dam fails. J. W. Ledoux. *plan Eng N* 76:232-3 Ag 3 '16

Plattsburg dam goes out. *il diag Eng N* 75:1106-7 Je 8 '16

Undermined by seepage flow, Lake Toxaway dam fails. W. N. Willis. *il Eng Rec* 74:273-5 Ag 26 '16

Wooden dam near Mendota, Cal., fails when foundation scours. *il Eng Rec* 74:541 O 28 '16

Damages

Direct settlements and the giving of testimony in accident cases. C. J. Franklin. *Elec Ry J* 46:1174-5 D 11 '15

Who is liable for loss through bungled telegram. E. J. Buckley. *Metal Work* 86:353-4 S 15 '16

See also Railroads—Claims; Workmen's compensation

Dampers

Damper regulator test. *il Elec Ry J* 47:869 My 6 '16

Metaphram high pressure steam damper regulators. *il Heat & Ven* 13:52 Je '16

Parker damper quadrants. *il Metal Work* 84:348 D 31 '15

Turner damper regulator and controller. *diag Heat & Ven* 13:52-3 Je '16

Use of metaphram as a damper regulator. *Heat & Ven* 13:56 Ja '16

Dams

Action of water on rock fills. R. Bennett. *Eng N* 75:463-4 Mr 9 '16

Arched gravity dams to be built at Lower Otay and Barrett sites. M. M. O'Shaughnessy. *diag Eng Rec* 74:195-6 Ag 12 '16

Austin dam section criticized. *Eng N* 76:217 Ag 3 '16

Automatic siphons used in Italian dams. L. Luigi. *diags Eng Rec* 72:697 D 4 '15

Building a big earth dam; the Calaveras reservoir. *il Sci Am S* 81:5 Ja 1 '16

Careful construction to make large dam for Youngstown, Ohio, watertight. *il diag Eng Rec* 74:407-9 S 30 '16

Cat and kitten holes in outlet of dam control high and low flood discharges. *diags Eng Rec* 74:162-3 Ag 5 '16

Check dams in the mountains of Los Angeles county. F. H. Olmsted. *Eng N* 75:551 Mr 23 '16

Comparative particulars of some recent dams. *il Engineer* 121:194-6 Mr 3 '16

Concrete and fine earth form core wall in rock-fill dam. *il Eng Rec* 72:781-2 D 25 '15

Concrete-capped sheetpile dam for Erie canal. E. Low. *il diags Eng N* 75:1121-2 Je 15 '16

Construct dams by hydraulic method with minimum of cost, labor and equipment. C. Wigmore. *il diag Eng Rec* 74:328-9 S 9 '16

Construction of earth dams. R. L. Daugherty. *il Sibley J* 30:81-4 D '15

Control of mountain torrents by check dams. F. H. Olmsted. *il Eng N* 75:314-15 F 17 '16

Control of the Colorado river and the protection of the Imperial valley. J. C. Allison. *Eng N* 75:1170-1 Je 22 '16

Cross-sectioning device on dam excavation. J. O. P. Coulling. *il diags Eng N* 75:422 Mr 2 '16

Dam cutoff wall with inserted grout pipes. E. Lauchli. *diag Eng & Contr* 45:412 My 3 '16

Drainage-pump foundation design is dam problem. H. L. Hutson. *diags plan Eng N* 76:838-9 N 2 '16

Earth dam construction. G. C. Habermeyer. *Eng & Contr* 45:293 Mr 29 '16

Earth dam with sheet-steel diaphragm and cutoff. *il diag plan Eng N* 76:398-400 Ag 31 '16

Europe's largest dam the work of Americans. *Sci Am* 115:457 N 18 '16

Every possible precaution observed to make watertight Keechelus reservoir, Washington. C. E. Crownover. *plans Eng Rec* 74:474-6 O 14 '16

Hydraulic fill method used to throw temporary dam across wide stream. *il Eng Rec* 72:794-5 D 25 '15

Hydraulic-fill temporary diversion dam construction, Colorado river. *diag Eng & Contr* 45:511-16 Je 7 '16

Large Taintor gates for a dam. *diags Eng N* 75:1211 Je 29 '16

Marine railways for hauling boats over dams. *plan Eng N* 75:469-70 Mr 9 '16

Method of keeping costs on the Piute irrigation project earth dam. J. Jenson. *Eng & Contr* 46:56-8 J1 19 '16

New water supply for Le Roy, N. Y. involves earth dam, filters and pipe line. J. P. Wells. *il Eng Rec* 73:735-6 Je 3 '16

Ninety-year-old dam at Troy, N. Y., removed on completion of new structure. *il Eng Rec* 73:61+ Ja 8 '16

Old and a new regulating dam construction, Erie canal, New York. *diags Eng & Contr* 46:138 Ag 9 '16

Oldest irrigation conduit and dam in the United States at San Diego. *il diag Eng N* 75:297-8 F 17 '16

Pine Hill dam for Worcester additional water-supply. *il Eng N* 74:1292-3 D 30 '15

Power and irrigation project for the Big Horn Canyon. *il Ry R* 59:442-5 S 30 '16

Dams—Continued

- Progress on Calaveras earth dam for San Francisco. *il Eng N 74:1254-5 D 30 '15*
- Puddling and rolling to assure impervious foundation for Keechelus reservoir. C. E. Crownover. *il Eng Rec 74:534-6 O 28 '16*
- Rock-fill dams tested by the record of experience. F. L. Sellew. *Eng N 75:462-3 Mr 9 '16*
- Rock-filled dams. F. E. Trask. *il Eng N 75:1006-7 My 25 '16*
- Safety in dam design. *Eng Rec 73:238-9 F 19 '16*
- Sandbag dam saved by canvas cover. *il Eng N 76:360-1 Ag 24 '16*
- Small check dams, in series, lessen flood velocities in California ravines. H. F. Olmsted. *il Eng Rec 73:636-8, 674-5 My 13-20 '16*
- State supervision of dams in Pennsylvania. *Eng N 75:676-7 Ap 6 '16*
- Steam shovel, crusher and pumps put hydraulic fill in dams. *il Eng Rec 73:190 F 5 '16*
- Stopping underground leakage from a power dam at Black River Village, N. Y. *il map Eng N 76:459-60 S 7 '16*
- Stresses in arch dams. L. Jorgensen. *Eng N 75:464 Mr 9 '16*
- Temporary rock-fill dam on Colorado river. *Eng N 76:622 S 28 '16*
- Three million yards being pumped to build Calaveras dam, 240 feet high, by hydraulic method. G. A. Elliott. *il diag Eng Rec 74:220-2 Ag 19 '16*
- Twin Cities' interest in the High dam. A. F. Meyer. *Assn Eng Soc J 55:170-83 N '15*
- Two new dams proposed for San Diego water-supply. *Eng N 76:231-2 Ag 3 '16*
- Unique method used to build rock-fill dam near Sonora, Cal. G. W. Howson. *il diags Eng N 75:604-6 Mr 30 '16*
- Upstream face of a rockfill dam sealed with a sliding concrete apron. *il diag Eng Rec 74:260-2 Ag 26 '16*
- Why rock-fill dams are not adapted to resist overflow. H. W. King. *Eng N 75:464-5 Mr 9 '16*
- See also* Cofferdams; Dam failures; Hydro-electric plants; Irrigation; Reservoirs; Spillways; also names of dams, e.g. Arrowrock dam, Elephant Butte dam, Grand river dam, Kensico dam, Spaulding dam

Foundations

- Austin dam; waterproofing the rock foundation. F. S. Taylor. *il Munic Eng 51:133-6 O '16*
- Investigations for dam and reservoir foundations. C. M. Saville. *il diags Eng N 75:1229-35 Je 29 '16*

Repair

- Quick repair of dam saves Charleston's water supply. *Eng Rec 74:151-2 Jl 29 '16*
- Repair of break around Seneca Falls dam. *il plan Eng N 75:500-1 Mr 16 '16*
- Repair of the Tres Cruces dam, Cavite Province, P. I. *il diags Eng N 76:1026-8 N 30 '16*

Dams, Concrete

- Building a big dam in wilds; St. Maurice dam. *il diags maps Eng N 75:876-80 My 11 '16*
- Building power house and dam on sand foundation at Prairie du Sac, Wis. *il diags plan Eng N 75:1113-16 Je 15 '16*
- Concrete dam far from railroads built largely with materials at hand. *il Eng Rec 74:280-1 S 2 '16*
- Constant angle arch dam. *il diags plans Engineer 122:264-6 S 22 '16*
- Famous Yadkin development nearing completion. *il diags plan Eng N 76:917-22 N 16 '16*
- Five schemes considered for power development at Kananaskis Falls, Alberta. H. S. Johnston. *il diags map Eng Rec 73:70-2 Ja 15 '16*
- Hollow concrete dam with subdivided water pressure. *diags Eng N 76:788 O 26 '16*
- Horizontal joint construction for rubble concrete dam. *diag Eng & Contr 45:593 Je 28 '16*
- Hurtlers suspended from timbers in concreting dam foundation. K. H. Schriver. *il Eng Rec 74:631 N 18 '16*

- Low concrete dam at Harrisburg across Susquehanna river. J. D. Justin. *il diags Eng N 74:1250-3 D 30 '15*
- Meadow dam. *il diags Engineer 121:262-3 Mr 24 '16*
- Modern turbines and new power house replace earlier French design of Yadkin river power project. *il diags plan Eng Rec 74:610-13 N 18 '16*
- New dam increases Salt Lake City water supply; cost data. *il Eng Rec 74:314-15 S 9 '16*
- New type of cantilever form saves erection time. *il Eng Rec 74:631-2 N 18 '16*
- Reinforced-concrete dams of the inverted-arch type. W. T. Ellington. *Eng N 75:738 Ap 20 '16*
- Reservoir and concrete dam in glacial drift. H. J. Langlois. *il diag Eng N 75:106-8 Ja 20 '16*
- Sorell thin arch dam in Australia. W. Nimmo. *il Eng N 76:712 O 12 '16*
- Spaulding dam to be raised from 225 to 260 ft. F. G. Mudgett. *il Eng N 76:328-9 Ag 17 '16*
- Temporary cement mill for big dam in Barcelona consular district. *Concrete 9:sup48 N '16*
- Three dams of power project involve interesting design and construction. E. Lauchli. *il diags Concrete 8:56-60 F '16*
- Two Ohio river dams built in two seasons. *il plans Eng Rec 73:360-3 Mr 11 '16*
- Upper Otay concrete arch dam stands heavy flood. *il plan Eng N 75:288 F 10 '16*
- Weir and head walls of Morris dam faced with concrete block. C. L. Nord. *Concrete 9:127 O '16*

See also Arrowrock dam; Elephant Butte dam; Kensico dam

Dams, Mine. See Mine dams**Dams, Movable**

- Building the rolling-crest dam across Grand river. *il plan Eng N 76:60-4 Jl 13 '16*
- Large roller-crest dam, Grand valley project, Colorado. F. Teichman. *il diags Eng N 76:1-4 Jl 6 '16*
- New York barge canal is in partial operation. *il Eng Rec 74:522-3 O 28 '16*

Dams, Steel

- Steel dam eighteen years old at Ash Fork, Ariz., still well preserved. *il Eng N 75:1035 Je 1 '16*

Dancing mania

- Tarantism and the dancing mania. *Sci Am S 82:195 S 23 '16*

Dandelion

- New field product with various uses. *Sci Am S 81:308 My 13 '16*

Danger signs. See Signs**Dangerous occupations. See Occupations, Dangerous****Daniels, Josephus, 1862-**

- Our naval secretary. *Sci Am 114:344 Ap 1 '16*

Danube river

- Economic possibilities of the Danube as a cosmopolitan highway. *Sci Am S 82:77 Jl 29 '16*

Date palms

- Growing our own dates. M. Woolley. *il Sci Am 115:244 S 9 '16*

Davenport, Iowa**Water supply**

- Notes on fire protection. T. N. Hooper. *Am Water Works Assn J 3:239-41 Mr '16*

Davits

- Coston davit turning gear. *il Int Marine Eng 21:308 Je '16*

Day, Benjamin, 1838-1916

- Artist—inventor. *Sci Am 115:266+ S 16 '16*
- Benjamin Day, inventor of Ben Day. S. H. Horgan. *por Inland Ptr 58:81 O '16*

Day-bed. See Couches**Day labor**

- Brick and asphalt paving by day labor. G. C. Brehm. *Eng N 75:1033 Je 1 '16*
- Brick pavement construction by day labor; itemized costs of three jobs by city forces in Carlisle, Pa. J. C. Hiteshew. *il Munic J 39:973-7 D 30 '15*

Day labor—Continued

- Considerations influencing choice between contract and day-labor road construction; abstracts. R. W. Acton. *Eng & Contr* 45:286-7 Mr 22 '16; *Eng N* 73:644-5 Ap 6 '16
- Cost data for asphaltic macadam pavement by day labor. G. C. Brehm. *Munic Eng* 51:58 S 16
- How Australia builds its railroads. M. E. Ker-
not. *Eng Rec* 72:694-6 D 4 '15
- Importance of cost data on day labor work. A. E. Foreman. *Munic J* 41:183-8 Ag 17 '16
- Municipal day labor in Flint, Mich. *Munic J* 41:208 Ag 31 '16
- Park grading by day labor. *il diag Eng N* 76:966-7 N 23 '16
- Paying by direct labor versus contract work. C. A. Mullen. *Munic Eng* 51:178-80 N '16
- 36-mile concrete road, built by day labor, will link Canadian cities. H. S. Van Scoyoc. *il Eng Rec* 73:520-1 Ap 15 '16

Daylight

- Code of lighting; factories, mills and other work places. plans *Illum Eng Soc* 10:605, 609-16 no 3 '15
- Daylight illumination, and the intensity and duration of twilight. H. H. Kimball. *il Illum Eng Soc* 11:399-413 no 3 '16

Daylight, Artificial

- Daylite glass. H. P. Gage. *il diag Sibley J* 30:247-50 My '16
- Gaseous conductor lamps for color matching. D. M. Moore. *il diag Illum Eng Soc* 11:192-219 no 2 '16; Abstracts. *Elec W* 66:1160 N 20 '15; *Elec R & W Elec'n* 67:949 N 20 '15; *Met & Chem Eng* 13:885 D 1 '15; *Eng M* 51:440-1 Je '16

Daylight saving

- Aspects of daylight-saving. *Sci Am* 114:614 Je 10 '16
- Daylight saving and electric railway traffic. *Elec Ry J* 47:1118-19 Je 17 '16
- Daylight saving; editorial comment. *Elec W* 68:986-7 N 18 '16
- Daylight saving movement. L. Bell. *Elec W* 67:1304-5 Je 3 '16
- Daylight saving movement and standard time. *Eng N* 76:1044 N 30 '16
- Daylight-saving problem. *Eng Rec* 73:759 Je 10 '16
- Progress of daylight-saving. *Sci Am* 115:148 Ag 12 '16
- Report of the committee on progress. *Illum Eng Soc* 11:760-1 no 8 '16
- Saving daylight; economic reasons that make a change in our hours of work desirable. G. F. Kunz. *Sci Am S* 82:18-19 Jl 8 '16

Dayton, Ohio**Bridges**

- City bought bridge materials in advance. *Eng N* 75:375 F 24 '16

Floods

- Miami conservancy plans are completed. *Eng Rec* 73:348 Mr 11 '16

Public works

- Improving the Miami at Dayton. *Munic J* 40:233-4 F 17 '16
- Straightening the Great Miami river at Dayton, Ohio. R. H. Randall. *il map Eng N* 75:64-5 Ja 13 '16

Sanitary affairs

- Collection and disposal of garbage in Dayton. O. J. E. Barlow. *Eng & Contr* 44:464-5 D 15 '15; Same. *Munic J* 39:913-15 D 16 '15

Deaf

- Using the eye instead of the ear in the training of a musician. C. E. Seashore. *il Sci Am* 114:506 My 13 '16

Death, Apparent

- Apparent death in the realm of microbes. *Sci Am* 114:119 Ja 29 '16

Death Valley, California

- Hottest region in the world. *Sci Am* 114:143 F 5 '16

Debt

- Compromise settlements of disputed claims. E. J. Buckley. *Metal Work* 85:895 Je 30 '16
See also Bankruptcy; Debts, Public

Debts, Public

- Tax burdens increased by great bonded debt. J. S. Chambers. *Good Roads n s* 12:76-8 Ag 5 '16

Decantation

- Countercurrent decantation. L. B. Eames. *Flow sheet Am Inst Min E Bul* 120:2087-2101 D '16

Decimal classification. *See* Classification, Decimal**Decimal system**

- Decimals of the degree and of the full circle. *Eng Rec* 72:671; 73:59, 121, 222, 292 N 27 '15, Ja 8, 22, F 12, 26 '16
- Decimals of the degree and the quadrant as a unit. E. M. Walker. *Eng Rec* 73:398 Mr 18 '16

Decimals

- Decimal equivalents. S. L. Cook. *Foundry* 44:350a S '16

Decolorizing

- Rapid method for comparing the decolorizing efficiency of charcoals. L. Wickenden and J. W. Hassler. *diag J Ind & Eng Chem* 8:518-19 Je '16

Decoration and ornament

- Cultivating the ugly. S. H. Horgan. *il Inland Ptr* 57:812-14 S '16
- Decorative plaster work. A. D. F. Hamlin. *il Brickb* 25:269-73, 292-6 O-N '16
- Details of decorating wall board. J. A. Poehl. *il Bldg Age* 38:51-3 Je '16

See also Architecture; Architecture—Details; Bronzes; Bronzing; Calico printing; Design, Decorative; Frescoes; Graffiti decoration; House decoration; Ironwork; Lettering; Lighting fixtures; Mosaics; Plaster work, Decorative; Scrolls (decorative design); Show windows; Stained glass; Stucco; Textile design

Decorative design. *See* Design, Decorative**Decorative lighting.** *See* Electric lighting, Decorative**Deeds**

See also Land descriptions

Deforestation

- Deserts due to deforestation. M. Wicks. *il Am For* 22:598-606 O '16

Degrees, Academic

- Academic millinery. *Met & Chem Eng* 14:557-9 My 15 '16

Should a new degree be created for proficiency in geology? symposium. *Econ Geol* 11:73-86, 185-93, 290-2 Ja-Apr '16

Dehydration

- Equilibria in the systems of the higher alcohols, water and salts. G. B. Frankforter and S. Temple. *Am Chem Soc J* 37:2697-716 D '15

Tar dehydration. E. V. Chambers. *plan Am Gas Light J* 103:389-91 D 20 '15

Delaware

See Roads—Delaware

Delaware & Hudson railroad

- Delaware & Hudson history; chart. *Ry Age* 60:1553 Je 23 '16

86th annual report. *map Ry Age* 60:778-80, 819-22 Ap 7 '16

Delaware, Lackawanna & Western railroad

- Comment on annual report. *Ry Age* 60:467-8 Mr 17 '16

Shortening the Lackawanna railroad. *il (supp) diag Engineer* 121:229-30 Mr 17 '16

Delivery vehicles. *See* Motor trucks**Demolition work.** *See* Wrecking**Demurrage**

- Demurrage as a cure for congestion and car shortage. *Ry Age* 59:1078-9 D 10 '15

Four months' demurrage record in California. *Ry Age* 61:402-3 S 8 '16

Keeping freight cars on the move. H. A. C. Taylor. *Factory* 16:451-2 My '16

Density. *See* Specific gravity**Dental cements**

- Physical properties of dental cements. P. Poetschke. *il J Ind & Eng Chem* 8:302-9 Ap '16

Dental instruments and apparatus

Electric direct-driven dental engine of light weight. *il* Elec R & W Elec'n 68:257 F 5 '16; Elec W 67:170 Ja 15 '16

Dentistry

Automobile dental shop of the French army. J. Boyer. *il* Sci Am 114:446 Ap 29 '16

See also School children, Free dentistry for

Denver, Colorado**Architecture**

United States post office and court house. *il* Arch & Bldg 48:54, pl 22-25 Ap '16

Bridges

Reinforced-concrete street viaduct at Denver, Colo. *il* diags Eng N 75:166-9 Ja 27 '16

Railroads

Reconstruction of Denver union station. *il* plans Ry Age 60:795-8 Ap 7 '16

Streets

How city people travel; analysis of traffic conditions in Denver, R. W. Toll. maps Gen Elec R 19:54-67 Ja '16

Deodorizers

Experiment with ozone as an adjunct to artificial ventilation at the Mt. Sinai hospital, New York city. A. M. Feldman. Am Soc Heat & V E 21:256-7 '15; Same. Heat & Ven 12:35-6 Mr '15; Discussion. Am Soc Heat & V E 21:257-9 '15

Department stores

May co. store, Cleveland, O. *il* plan Arch & Bldg 47:412-16 N '15

Plumbing work in department store rest room. *il* diag plan Metal Work 85:243-7 F 18 '16

Deposition. *See* Sedimentation and deposition**Depreciation**

Absurdities of the straight line method of determining depreciation. J. B. Jenkins. Ry Age 60:357-8 F 25 '16

Bay State street railway valuation. Elec Ry J 46:1121-3 D 4 '15

Depreciating overhead charges; supplementary note and glossary of terms. B. J. Arnold. Elec Ry J 47:498-9 Mr 11 '16

Depreciation and appreciation. W. H. Forse, Jr. Elec Ry J 46:1169-70 D 11 '15

Depreciation and valuation. J. J. Thomas. J Account 21:24-33 Ja '16

Depreciation and value of public utilities. C. C. James. J Account 22:409-16 D '16

Depreciation as an element in rate making. J. How. Am Gas Light J 104:214 Ap 3 '16

Depreciation as applied to valuation. R. B. Shepard, Jr. Eng Rec 74:202 Ag 12 '16

Depreciation of controlled plant. Engineer 122:419-20 N 10 '16

Giving local 100 per cent service. H. S. Cooper. Elec Ry J 48:1060-2 N 18 '16

Growth and depreciation. J. Loebenstein. Am Inst E E Pro 35:1559-77 N '16; Excerpts. Elec Ry J 48:1057-9 N 18 '16

Life data on power-plant equipment used in valuation of Massachusetts property. Elec W 66:1261 D 4 '15

Perpetual inventory and appraisal values. C. Piez. Iron Age 98:1227+ N 30 '16; Same. Factory 17:668-71 D '16; Same cond. Am Soc M E J 38:965-6 D '16

Principles of depreciation accounting. R. G. Klotz. Ind Management 52:164-76 N '16

Rational plant units for depreciation accounting. R. G. Klotz. Eng N 75:23-4 Ja 6 '16

Reckoning with costs of superseded equipment. E. D. Dreyfus. Elec W 68:272-4 Ag 5 '16

Results of questionnaire on life and depreciation of cast iron water pipe in 14 large American cities. Eng & Contr 44:466-7 D 15 '15

What the modern power-plant engineer must know. H. W. Geare. Power 42:869 D 21 '15

Derailments

Car derailments, causes and a remedy. H. M. Perry. diags Ry Age (Mech ed) 89:619-20 D '15

Foreign and American derailments. S. Thompson. Ry R 58:617-13 Ap 29 '16

Investigation of the Baltimore & Ohio derailment at Eightyfour, Pa. Ry Age 60:347-8 F 25 '16

Derrick cars. *See* Wrecking cars

Derricks. *See* Cranes, derricks, etc.

Desert roads. *See* Roads, Desert

Deserts

Deserts due to deforestation. M. Wicks. *il* Am For 22:598-606 O '16

Design

Redesigning to cut costs. *il* Factory 16:565-8 Je '16

See also Architecture—Designs and plans; Bridge design; Concrete construction—Design; Machinery—Design; Textile design

Design, Decorative

Design and what it means. A. F. Saunders. *il* Metal Ind n s 14:246-7 Je '16

Genetic relations of certain forms in American aboriginal art. C. Wissler. Sci Am S 82: 285 O 28 '16

See also Decoration and ornament; Lettering

Des Moines, Iowa**Rapid transit**

New franchise adopted in Des Moines. Elec Ry J 47:205-6 Ja 29 '16

Destroyers. *See* Torpedo boat destroyers

Detail engineer. G. P. Pearce. diags Mach 22: 1039-42 Ag '16

Detectors

Crystal detectors; abstract. V: A. Hune and L. E. Whittemore. Elec W 68:140 Jl 15 '16

Ground detector for transmission line. diag Elec R & W Elec'n 68:388 F 26 '16

Types of detectors. Sci Am 114:208+ F 19 '16

Detinning

Recent metallurgical patents. diags Met & Chem Eng 14:55-6 Ja 1 '16

Detonators

Hygroscopic properties of sodium, potassium and ammonium nitrates, potassium chlorate and mercury fulminate. G. B. Taylor and W. C. Cope. Met & Chem Eng 15:140-3 Ag 1 '16

Sand test for determining the strength of detonators. C. G. Storm and W. C. Cope. *il* diags U S Bur Mines Tech Pa 125:1-64 '16; Abstract. Engineer 122:330 O 13 '16

Sensitiveness to detonation of trinitrotoluene and tetranitromethylanilin. G. B. Taylor and W. C. Cope. U S Bur Mines Tech Pa 145:1-8 '16

Detonators, Electric

Detonation of submarine mines by electricity. diags Sci Am S 81:253 Ap 15 '16

Detroit, Michigan**Lighting**

Arc lamps show low-outrage record at Detroit. Elec W 67:546 Mr 4 '16

Municipal lighting plant. *il* Munic Eng 50:185-6 My '16

Street lighting in Detroit. Munic Eng 50:128-30 Ap '16

Ordinances, etc.

Refrigeration plant regulations, New York and Detroit. Power 43:932-4 Je 27 '16

Railroads

Maintenance on the Detroit tunnel electric zone. *il* diags map Elec Ry J 47:528-33 Mr 18 '16

Sewerage

Detroit sewage disposal from international viewpoint. C. W. Hubbell. Eng N 75:961-2 My 18 '16

Sewage disposal at Detroit. Eng N 74:1203 D 23 '15

Water supply

Meter and pumping costs in Detroit. T. A. Leisen. Eng Rec 73:552 Ap 22 '16

Detroit executives' club

Association of business men to study greater efficiency of plant operation. B. Fisher. Eng M 51:381-6 Je '16

Detroit river

Plant and method of dry excavation, Livingstone channel, Detroit river. C. Y. Dixon. map Eng & Contr 46:425-6 N 15 '16

Deutschland (submarine boat)

German submersible blockade runner. il plan Sci Am 115:82-3 J1 22 '16

De Vinne, Theodore Low, 1828-1914

Theodore Low De Vinne, printer. Inland Ptr 56:625-7 F '16

Diagnosis

New apparatus for internal diagnosis. J. Boyer. il Sci Am 115:55 J1 15 '16

Dialysis

Studies in dialysis; the dialysis of a colloidal solution of hydrous chromic oxide in chromic chloride. M. Neidle and J. Barab. diag Am Chem Soc J 38:1961-70 O '16

Temperature effect in dialysis and a simple rapid dialyzer. M. Neidle. diag Am Chem Soc J 38:1270-2 J1 '16

Diamines

Researches on pyrimidines; the synthesis of 1, 3-diamines by reduction of 2-mercapto-6-oxypyrimidines. T. B. Johnson and A. W. Joyce. Am Chem Soc J 38:1854-60 S '16

Diamonds

Diamond cutting in America. il map Sci Am S 82:232-3 O 7 '16

Diamonds of Smiths Flat, Calif. B. Evans. Eng & Min J 102:814-15 N 4 '16

Discovery of new diamond fields in Transvaal. Sci Am 115:190 Ag 26 '16

Early revival of the South African diamond industry. Sci Am 115:255 S 16 '16

Hints on judging diamonds. Sci Am S 81:133 F 26 '16

How to value gems. E. Freund. Sci Am S 81:334-6 My 20 '16

Restrictions on the diamond trade. Eng & Min J 101:132 Ja 15 '16

See also Precious stones

Testing

Testing a diamond. S. L. Bastin. il Sci Am 115:386 O 28 '16

Diastases

Experiments upon starch as substrate for enzyme action. H. C. Sherman and J. C. Baker. Am Chem Soc J 38:1885-1904 S '16

Experiments upon the amylase of aspergillus oryzae. H. C. Sherman and A. P. Tanberg. Am Chem Soc J 38:1638-45 Ag '16

Products of the action of certain amylases upon soluble starch, with special reference to the formation of glucose. H. C. Sherman and F. W. Punnett. Am Chem Soc J 38:1877-85 S '16

Dictograph. See Teletypewriter**Die. See Dies****Die casting**

Aluminum die-casting. C: Pack. Mach 22:403 Ja '16

Aluminum die castings. Metal Ind n s 14:334 Ag '16

Bronze die-castings. P: J. Weber. Mach 22:411 Ja '16

Die-casting machine. diags Engineer 121:312 Ap 14 '16

Difficulties in making brass die-castings. Mach 22:410-11 Ja '16

Evolution of the die casting process; abstract. C: Pack. Iron Age 98:677-8 S 21 '16

Informative data on die castings. J: A. Schultz, Jr. Iron Age 97:900-1 Ap 13 '16

New process of die-casting bronzes and copper base alloys. il Metal Ind n s 14:34 Ja '16

See also Die pressed castings

Die pressed castings

Production of die-pressed castings. E: K. Hammond. il diags Mach 22:363-70 Ja '16

Dielectrics

Compensated dynamometer wattmeter method of measuring dielectric energy loss. G. B. Shanklin. il diags Gen Elec R 19:842-53 O '16

Effect of transient voltages on dielectrics. F. W. Peek, Jr. il Am Inst E E Pro 34:1695-1747 Ag '15; Discussion. 35:225-35 F '16

Investigation of dielectric losses with the cathode ray tube. J. P. Minton. il Am Inst E E Pro 34:1115-65 Je '15; Abstract. Elec W 66:66 J1 10 '15; Discussion. Am Inst E E Pro 35:21-34 Ja '16

See also Insulation

Dies

Cast-iron drop-forge dies; abstract. A. R. Braden. Am Soc M E J 38:929-30 N '16

Cast vanadium steel dies. il Iron Age 96:1351-2 D 9 '15; Iron Tr R 57:1286 D 30 '15

Combined blanking, drawing, forming and piercing die. W. L. Jones. diags Mach 23:158 O '16

Design and manufacture of dies. G: H. Hamilton. il diags Mach 22:569-74 Mr '16

Device for forming sill steps. J: Treacy. il diag Ry Age (Mech ed) 89:641-2 D '15

Drawing metal by hydraulic method. G. R. Smith. il diag Iron Tr R 59:213 Ag 3 '16

Experience in drawing thin white-metal tubes. H. J. Randall. diags Metal Ind n s 14:386-7 S '16

False riveting die. H. F. McKnight. diag Mach 22:891 Je '16

Finishing edges of dies. il Iron Age 98:754-5 O 5 '16

Grinding dies on the Bryant chucking grinder. diags Mach 22:422 Ja '16

Heat-treatment of drop-forging dies. F. E. Merriam. Mach 22:507-8 F '16

Making a pressed steel ball retainer. E. Walters. diags Mach 22:686 Ap '16

Method of local hardening. P. Cyr. diags Mach 22:512 F '16

National pipe die. il Dom Eng 73:375 D 18 '15

Piercing, blanking and forming die. A. H. Wilson. diags Mach 22:696 Ap '16

Pinch press tool. il diags Mach 22:511-12 F '16

Press-work on a universal joint cover. E. A. Walters. diags Mach 22:860-1 Je '16

Pressing and stamping metals. O. Smith. il diags Ind Management 52:213-24 N '16

Punch and die troubles. J. M. Stabel. diags Mach 22:484-6 F '16

Rickert-Shafer automatic threading die. il diags Mach 22:714 Ap '16

Rod notching die. H. F. McKnight. diag Mach 22:985-6 J1 '16

Self-opening die. il Iron Age 97:1559 Je 29 '16

Threading die with adjustable chasers. il Iron Age 96:1524 D 30 '15; Mach 22:434 Ja '16

See also Die pressed castings; Punching machinery; Sheet metal work; Stamps, Steel

Diesel engines

Air regulation for Diesel engine compressors. il diag Engineer 121:193 Mr 3 '16

Best oil for Diesel engines. J Ind & Eng Chem 8:654-5 J1 '16

Competition of the Diesel engine. H. L. Jones. Elec W 68:237 J1 29 '16

Cracked and seized pistons. P. H. Smith. Power 43:32 Ja 4 '16

Diesel engine and its applications in southern California. R. W. Crowley. Am Soc M E J 38:308-9 Ap '16

Diesel engine economy. N. Ogden. Power 43:192-3 F 8 '16

Diesel-engine operation and upkeep data. L. W. W. Morrow. Elec R & W Elec'n 69:326-8 Ag 19 '16

Diesel-engine operation at Palo Alto municipal plant. Power 43:610-11 My 2 '16

Diesel engines for generator drive. C: LeGrand. Am Inst E E Pro 34:1815-18 Ag '15; Discussion. 35:264-71 F '16

Diesel engines versus steam turbines for mine power plants. H. Haas. il Am Inst Min E Bul 115:1171-83 J1 '16; Excerpts. Met & Chem Eng 15:156-7 Ag 1 '16; Abstract. Am Soc M E J 38:674-5 Ag '16; Abstract. Iron Age 98:291 Ag 10 '16; Excerpts. Engineer 122:324 O 13 '16; Discussion. Am Inst Min E Bul 120:2213-22 D '16

Diesel engines with low compression. W. H. Watkinson. diags Engineer 122:266-7 S 22 '16; Same cond. Am Soc M E J 38:933-4 N '16

Diesel motors for vehicle work. diag Automobile 34:943-4 My 25 '16

Diesel-steam plants. G. Porter. Iron Age 98:405 Ag 24 '16

Diversified service for Diesel engines. il Power 44:585-6 O 24 '16

Diesel engines—Continued

- Effect of Diesel engines on fuel supply and cost. S. A. Hadley. *Eng & Contr* 45:170-1 F 16 '16
- Experience with the Diesel engine in the municipal power plant of Palo Alto, Calif. J. F. Byxbee, jr. *il Eng & Contr* 45:44-7 Ja 12 '16
- Fuel and lubricating oil consumption of four western Diesel-engine installations. *Elec W* 67:380 F 12 '16
- Heat distribution balance for Diesel engines. R. H. Burdick. *il Elec W* 67:994-5 Ap 29 '16
- Heavy-oil engines. S. B. Daugherty. *diags Am Soc M E J* 38:783-7 O '16
- Kinks and operating costs at small pumping plant. *il Eng Rec* 74:201 Ag 12 '16
- Margin of power in internal-combustion engines. J. F. Wentworth. *Power* 44:137 JI 25 '16
- Margin of power in internal combustion engines; Diesel engine rating. R. E. Mathot. *Power* 43:878 Je 20 '16
- Method of operation of the Hesselmann fuel nozzle. J. F. Wentworth. *diags Power* 43:83-4 Ja 18 '16
- National transit horizontal engine with improvements. *il diag Munic J* 41:272-3 Ag 31 '16
- Oil engines. G. E. Windeler. *diags Engineer* 121:158-9 F 18 '16
- Operating a Diesel engine under difficulties. *plan Power* 42:788 D 7 '15
- Operation of a small Diesel engine municipal plant; Downers Grove, Ill. *il Elec W* 68:513-14 S 9 '16
- Power plant of the Burro mountain copper co. C. Legrand. *plans Am Inst Min E Bul* 117:1531-8 S '16; Abstract. *Am Soc M E J* 38:833-4 O '16; Discussion. *Am Inst Min E Bul* 120:2181-3 D '16
- Pumping costs with Diesel engines given in detail. H. W. Gochner. *il Eng Rec* 73:732-3 Je 3 '16
- Southwark-Harris valveless engine. *Am Soc M E J* 38:85-6 Ja '16
- 350 B.H.P. crosshead type Diesel engine. *il diags Engineer* 122:414-15 N 10 '16
- Underloading oil engines. A. J. Fortner. *Power* 44:212-13 Ag 8 '16
- Vertical, 4-cylinder, 4-stroke cycle, single-acting Diesel engine. E. A. Garrett. *il diags Sibley J* 30:124-7 Ja '16

Manufacture

- Molding a Diesel engine cylinder. J. S. Horner. *il diags Foundry* 44:277-80 JI '16

Testing

- Institution of mechanical engineers. F. T. Wilkins. *Engineer* 122:368-9 O 27 '16
- Performance of Diesel-engine plants in Texas. R. H. Burdick. *il diag plan Elec W* 67:587-92 Mr 11 '16

Diesel engines, Marine

- British firms' experience with two-stroke-cycle Diesels. L. O. Thomas. *Power* 44:566 O 17 '16
- Burmeister and Wain Diesel motor to be built in America by the William Cramp & sons ship and engine building company. *il Int Marine Eng* 21:170-2 Mr '16
- Craig marine Diesel. *il diags Power* 44:453-6 S 26 '16
- Details of first government built Diesel engine. C. W. Nimitz. *diags Power* 43:163-5 F 1 '16
- Diesel engine; a survey of its evolution as applied to marine purposes. C. Kloos. *Sci Am* 80:394-5 D 18 '15
- Diesel engines for the U. S. S. Maumee. H. Diederichs. *Sibley J* 30:123-4 Ja '16
- Giant Diesel engine for the submarine depot ship Ceara. *il Sci Am* 114:507 My 13 '16
- Heat maladies of marine Diesels. *Power* 43:520-1, 667, 777, 813-15; 44:215-16 Ap 11, My 9, 30, Je 6, Ag 8 '16
- Heat maladies of marine Diesels. R. W. Crowley. *Power* 43:244-8 F 22 '16
- Motor tank ship Hamlet. *il Engineer* 122:346-7, 350 O 20 '16
- 120-horsepower 4-cylinder Niseco Diesel engine. *il diags Int Marine Eng* 21:44-5 Ja '16
- Present position of the marine Diesel engine and its possibilities. W. P. Sillince. *Engineer* 121:325-7 Ap 14 '16
- Successes and failures of Diesel ships. T. O. Lisle. *Power* 43:916-18 Je 27 '16

- Two- vs. four-stroke cycle. J. F. Wentworth. *Power* 44:565-6 O 17 '16
- Two- versus four-stroke-cycle marine Diesels. H. Schreck. *Power* 44:315-16 Ag 29 '16
- Two- vs. four-stroke-cycle marine Diesels. R. W. Crowley. *Power* 44:253-4 Ag 15 '16
- Werkspoor marine Diesel engine. J. R. Wilson. *il diags Int Marine Eng* 21:16-19 Ja '16

Diet

See also Digestion; Nutrition; Vegetarianism; Vitamines

Differential. *See* Automobiles—Differential

Differential equations

- Differential equations in engineering. E. J. Berg. *Mach* 22:399 Ja '16

Differentiator

- Differentiator; an instrument for laying out curves in engineering problems. A. Elmen-dorf. *il diag Sci Am S* 81:100-1 F 12 '16

Diffraction

- Ruling and performance of a ten-inch diffraction grating. A. A. Michelson. *il J Fr Inst* 181:785-9 Je '16

Diffusion

See also Colloids

Digesters

- Butt and double strap joints for sulphite digesters. *il diags Locomotive* 31:99-103 O '16
- Papermaking and its machinery. *il diags Engineer* 120:617 D 31 '15

Digestion

- Assumed destruction of trypsin by pepsin and acid. J. H. Long and M. Hull. *Am Chem Soc J* 38:1620-3S Ag '16
- Chemical composition of commercial glucose and its digestibility. J. A. Wesener and G. L. Teller. *J Ind & Eng Chem* 8:1009-20 N '16
- Digestibility of bread; salivary digestion in vitro. J. C. Blake. *Am Chem Soc J* 38:1245-60 Je '16
- Examination of certain methods for the study of proteolytic action. H. C. Sherman and D. E. Neum. *Am Chem Soc J* 38:2199-216 O '16

Digestive ferments. *See* Diastases

Dihydronaphthoic acids

- Structure of the dihydro- α -naphthoic acids. O. Kamm and H. B. McClugage. *Am Chem Soc J* 38:419-30 F '16
- Structure of the dihydro- β -naphthoic acids. C. G. Derick and O. Kamm. *Am Chem Soc J* 38:400-19 F '16

Dining cars

- Smoke jack for passenger cars. *diags Ry Mech Eng* 90:308 Je '16

Dinitropyrocolls

- Constitution of the three symmetrical dinitropyrocolls. W. J. Hale and W. V. Hoyt. *Am Chem Soc J* 38:1065-71 My '16

Dinosaur national monument

- Government fossil tract in Utah. A. Chapman. *il Sci Am* 113:558 D 25 '15

Diocletian

- Palace of Diocletian. F. Lees. *il plans Arch Rec* 40:549-57 D '16

Dipping fluids

- New methods for the analysis of lime-sulfur solutions. R. M. Chapin. *J Ind & Eng Chem* 8:151-6 F '16

Dirigible balloons. *See* Airships

Disabled soldiers. *See* Soldiers, Disabled

Discount

- Checking invoices to gain the discount. J. P. Thompson. *Factory* 17:440+ O '16
- Who should receive the jobber's discounts? G. D. Crain, jr. *Elec R & W Elec'n* 69:126-7 JI 15 '16

Diseases, Industrial

- Morality and health statistics. H. Emerson. *J Ind & Eng Chem* 8:870-1 O '16
- Symposium on occupational diseases in chemical trades. *J Ind & Eng Chem* 8:1054-67 N '16

See also Miners—Diseases and hygiene; Miners' nystagmus

Diseases, infectious. *See* Infectious diseases

Dishwashing machines

Gas water heater and dishwasher. *il* Gas Age 38:621 D 1 '16

Dishwashing machines, Electric

Crystal dish-washing and clothes-washing machines. *il* Elec R & W Elec'n 68:520 Mr 18 '16

Electric dishwashing machine, by National machine & stamping co. *il* Elec W 68:290 Ag 5 '16

Murray electric dish washers. *il* Elec W 67:1259-60 My 27 '16

Disinfection and disinfectants

Efficient liquid disinfectant. *Metal Work* 85:112 Ja 14 '16

Efficient liquid disinfectants. A. F. Stevenson. *Metal Work* 85:22 Ja 7 '16

Phenol coefficient of germicides. F. B. Kilmer, A. W. Clark and P. Hampton. *J Ind & Eng Chem* 8:45-7 Ja '16

See also Antiseptics; Ozone

Dissociation

Constitution and fundamental properties of solids and liquids. I. Langmuir. *Am Chem Soc J* 38:2264-71 '16

Dissociation of ferric oxide in air. J. C. Hostetter and R. B. Sosman. *diags Am Chem Soc J* 38:1188-98 Je '16

Dissociation of hydrogen into atoms. I. Langmuir. *Am Chem Soc J* 37:417-58; 38:1145-56 Mr '15; Je '16

Dissociation pressures of mercurous chloride. A. Smith and R. P. Calvert. *Am Chem Soc J* 38:801-7 Ap '16

Dissociation tensions of certain hydrated chlorides and the vapor pressures of their saturated solutions. I. H. Derby and V. Yngve. *Am Chem Soc J* 38:1439-51 Ag '16

Electrical transference in amalgams. G. N. Lewis, E. Q. Adams and E. H. Lanman. *diag Am Chem Soc J* 37:2656-62 D '15

Theory of multiple ionization; a modification of the electrolytic dissociation theory. F. F. Heyroth. *Am Chem Soc J* 38:57-65 Ja '16

See also Electrochemistry; Electrolysis; Electrolytes; Electrons

Distillation

Apparatus for distilling water economically. *Textile World* 51:3115 J1 8 '16

Burning and distilling water gas tar. C. Otten, Jr. *diags Am Gas Light J* 104:149-51 Mr 6 '16

Distilled feed water. C. F. Hirshfeld. *Eng M* 44:724-30 Ag '15; Same. *Am Gas Light J* 103:375-4 D 13 '15

Fractional distillation of lubricating oils. J. G. O'Neill. *Power* 44:108-12 J1 18 '16

Modification of the Barnard-Bishop still. J. J. Hinman, Jr. *il J Ind & Eng Chem* 8:164 F '16

Operation and costs of a eight-effect distilling plant; abstract. F. T. Leilich. *Met & Chem Eng* 15:213-15 Ag 15 '16

Recovery of ammonia from waste liquors. E. L. Knoedler. *il diag J Ind & Eng Chem* 7:1061-4 D '15; Same. *Am Gas Light J* 104:70 Ja 31 '16

Still for recovering benzene. B. N. Everett. *il Power* 43:890 Je 20 '16

See also Alcohol; Coal distillation; Essential oils; Peat distillation; Petroleum—Distillation; Wood distillation

District heating. See Heating from central stations**Districting of cities. See City planning—Zone system****Ditching machines. See Excavating machinery****Divination**

Tortoise-shell divination. N. Tsuda. *Sci Am S* 81:57 Ja 22 '16

See also Divining rod

Diving, Submarine

How men work in the depths of the sea. *il Sci Am S* 81:341 My 27 '16

Diving apparatus

Beer keg and kitchen boiler serve as diving helmets. *il Eng N* 76:607-8 S 28 '16

Diving spectacles. *il Sci Am S* 82:197 S 23 '16

Novel hospital locks. *il Sci Am* 115:45-6 J1 8 '16

Outfit for under-water work. *il Metal Work* 86:103 J1 28 '16

Simple but very flexible diving equipment. R. G. Skerrett. *il Sci Am* 115:78 J1 22 '16

Diving bell

Large volume of concrete handled in small batches at Halifax ocean terminals; foundations prepared by diving bell. *il diags plan Eng Rec* 73:143-6 Ja 29 '16

Divining rod

Artesian wells and methods of pumping them. J. D. Kilpatrick. *Am Water Works Assn J* 2:642-3 D '15

Mystery of the divining rod. S. Le Fevre. *Eng & Min J* 101:651-2 Ap 8 '16

Division of words. See Word division**Dixie highway**

National highways in Florida. Mrs. K. Munroe. *il Am For* 22:659-60 N '16

Docks

Better docks for less money; reinforced concrete proves ideal material for pier construction. H. M. Farrand. *il diag Int Marine Eng* 21:468-9 O '16

Buffalo barge canal terminal. *diags plan Eng N* 74:1124-5 D 9 '15

Construction of the Balboa dry dock. *il Sci Am* 115:438 N 11 '16

Crandall railway dry docks in Scandinavia. *il Int Marine Eng* 21:487-8 N '16

Docks, harbours, and waterways in 1915. *Engineer* 121:9-10, 27 Ja 7-14 '16

Floating dock of 14,000 tons lifting power at Rotterdam; abstract. *Int Marine Eng* 21:260 My '16

Government dry dock at Norfolk, Va. *Eng & Contr* 46:273-4 S 27 '16

Jacksonville municipal docks are open for business. *Eng N* 76:722 O 12 '16

Municipal docks at Astoria, Ore. J. P. Newell. *il diags plan Eng N* 76:697-700 O 12 '16

See also Freight handling; Harbors; Ore docks; Ports; Wharves

Dodge, Frederick Warren, 1864-1915

F. W. Dodge—a tribute. R. W. Babson. *por Arch Rec* 39:88a-88h Ja '16

Dodge, Grenville Mellen, 1831-1916

Sketch. *por Eng N* 75:137-8 Ja 20 '16; *Ry Age* 60:12 Ja 7 '16

Dodge, James Mapes, 1852-1915

Sketch. *por Eng N* 74:1146 D 9 '15; *Power* 42:846 D 14 '15; *Iron Tr R* 57:1191-2 D 16 '15;

Ry R 57:803-4 D 18 '15; *Eng & Contr* 44:23 D 29 '15; *Am Soc M E J* 38:68-9 Ja '16;

Foundry 44:38 Ja '16; *J Fr Inst* 181:148-51 Ja '16

Tribute. W. Kent. *por Iron Age* 96:1368-9 D 9 '15

Dogs

Visual pattern-discrimination in the vertebrates; a demonstration of the dog's deficiency in detail-vision. H. M. Johnson. *J Fr Inst* 180:736-8 D '15; Same. *Sci Am S* 81:315, 357 My 13, Je 3 '16

Doll factories

Electricity increases doll factory output. *il Elec W* 68:1107-8 D 2 '16

Dollman, John Charles, 1851-

Am I my brother's keeper? M. G. Scott. *il Inland Ptr* 58:89-90 O '16

Domes

Dome of reinforced concrete at Ocean Park. *Cal. il Sci Am* 115:440 N 11 '16

Dome of St. Maria del Fiore, Florence; a study of its structural system. R. F. Bach. *il diags Brickb* 25:209-15 Ag '16

Dome of St. Paul's, London. R. F. Bach. *il diags plans Brickb* 25:275-80 N '16

Dome of St. Peter's, Rome. R. F. Bach. *il diags Brickb* 25:249-54 O '16

Dome of the old St. Louis hotel, New Orleans. N. C. Curtis. *il diag Arch Rec* 39:355-8 Ap '16

Heavily loaded with snow, St. James cathedral dome, Seattle, falls. *il Eng Rec* 73:244-5 F 19 '16

Domestic animals. See Barns and stables; Live stock

Domestic appliances

See also Dishwashing machines; Electric cooking; Electric irons; Electricity in the home; Gas appliances; Kitchen utensils

Domestic architecture. *See* Architecture, Domestic**Domestic engineering**

See also Lighting; Plumbing; Ventilation

Doors

- Automatic door-releasing or opening device. *il* Elec W 67:113 Ja 8 '16
- Fitting and hanging doors, *diag* Bldg Age 38: 56 Ja; 38:48 Mr; 61 Ap '16
- Italian doors. J. H. Scarff. *il* *diags* Brickb 25: 47-51 F '16
- Standard iron door. Metal Work 85:405 Mr 24 '16

See also Car doors; Doorways; Garages—Doors; Partitions

Doorways

- Details from Essex, Connecticut; measured and drawn by P. G. Gulbranson. Arch & Bldg 48:detail sheet 8, detail sheet 9 Ag-S '16
- Doorway and porch, Colross mansion, Alexandria, Va.; measured and drawn by J. L. Kelster, O. J. Munson and J. A. Weber. Brickb 25:207 Ag '16
- Doorway, house at Madison, N. J. Arch & Bldg 48:detail sheet 11 N '16
- Doorway of Barton-Myers house, Norfolk, Va., 1791, and Hodges-Webb-Meek house, Salem, Mass., 1800. Brickb 25:265-8 O '16
- Doorway of house on Prince and St. Asaph streets, Alexandria, Va. and Hall doorway, Homewood, Baltimore, Md. Brickb 25:95-8 Ap '16
- Doorway of the Lafayette house, Alexandria, Va. and the Johns house, New Castle, Delaware. *il* *diags* Brickb 25:297-300 N '16
- Doorway, 114 South Fairfax street, Alexandria, Va.; measured and drawn by J. L. Kelster, O. J. Munson and J. A. Weber. Brickb 25:175-6 Jl '16
- Doorway, Robinson house, Alexandria, Va.; measured and drawn by J. L. Kelster, O. J. Munson and J. A. Weber. Brickb 25:15-16 Ja '16
- Doorway, Snowden house, Alexandria, Va.; measured and drawn by J. L. Kelster, O. J. Munson and J. A. Weber. Brickb 25:67-8 Mr '16
- Interior doorway, Homewood, Baltimore, Md.; measured and drawn by R. Buckler. Brickb 25:157-8 Je '16
- Main entrance to "Homewood," Baltimore, Md.; measured and drawn by R. Buckler. Brickb 25:123-4 My '16
- Marquise construction for entrance canopy. *diags* Metal Work 86:333-6 S 13 '16
- Views. Bldg Age 38:35-7 Ag '16

Dordogne

- Dordogne; the primitive European's cradle. J. de Sury. *il* Sci Am S 82:136-7 Ag 26 '16

Dormer windows

- Dormer, Snowden house, Alexandria, Va.; measured and drawn by J. L. Kelster, O. J. Munson and J. A. Weber. Brickb 25:45-6 F '16

Dorr agitator

- Altering Dorr agitators. *diags* Eng & Min J 102:943 N 25 '16

Dorr classifier

- Classifying. J. V. N. Dorr. Met & Chem Eng 14:295-7 Mr 15 '16

Dorr company

- History of a prominent metallurgical and industrial engineering firm. Met & Chem Eng 14:451-6 Ap 15 '16

Dorr thickener

- Foam sweep for thickeners. D. W. Minier. *il* *diags* Eng & Min J 100:1010-11 D 13 '15
- Laboratory method for determining the capacities of slime-settling tanks. H. S. Coe and G. H. Clevenger. *il* *diags* Am Inst Min E Bul 111:599 Mr '16

Douglas fir

- Commercial uses of Douglas fir. J. S. Williams. *il* Am For 22:69-75 F '16
- Cresoting Douglas fir. O. P. M. Goss. Ry R 57:833 D 25 '15

- Douglas fir; identification and characteristics. S. B. Detwiler. *il* map Am For 22:67-9 F '16
- Forest service proposes Douglas fir grading rule. Eng Rec 73:212-13 F 12 '16
- Methods of cresoting Douglas fir timber. O. P. M. Goss. Ry Age 60:123 Ja 21 '16
- Perforation of fir ties before treatment. *il* Ry R 59:288-9 Ag 26 '16

Draft

- Capacities of chimneys. G. A. Orrok. Power 44:274-6 Ag 22 '16
- Chimney draft's relation to boiler efficiency. E. R. Fish. *il* *diag* Textile World 51:4741-N 4 '16; Same cond. Power 44:702 N 14 '16
- Coking and caking coal. S. H. Viall. Power 43:432-4 Mr 28 '16
- Connecting two heaters to one flue. Metal Work 85:152 Ja 28 '16
- Draft accelerator. *il* Metal Work 84:752 D 10 '15
- Draft and its application to the steam boiler. E. A. Uehling. Power 44:711-14 N 21 '16
- Draft in fire-tube boilers. S. H. Viall. *diags* Power 43:509-11 Ap 11 '16
- Faulty chimney draft. *diag* Metal Work 84:744 D 10 '15
- Maintaining uniform steam pressures with fluctuating steam demands. *il* charts Elec W 67:1480 Je 24 '16
- Recording instruments for the boiler house. F. J. Denk. *diags* Power 43:399-401 Mr 21 '16
- Remedying faulty chimney draft. Metal Work 84:764 D 17 '15
- Selection of stacks and breeching. W. Wippermann. Power 43:286-9 F 29 '16
- Self-acting draft regulator. Metal Work 85:78 Ja 7 '16
- Series of lectures given to firemen at Philadelphia water pumping stations. Eng & Contr 45:296 Mr 29 '16
- See also* Dampers; Firing; Mechanical draft; Tunnel ventilation

Draft, Mechanical. *See* Mechanical draft**Draft gages**

- Draft gages on oil-burning boilers. F. H. Rosencrants. *diags* Power 43:147-8 F 1 '16
- Efficiency in the boiler room. J. Harrington. Power 44:272 Ag 22 '16
- What draft gages tell. M. K. Bryan. *il* Power 42:899-900 D 28 '15

Draft gears

- Cause of shocks in long freight trains. H. C. Priebe. Ry Mech Eng 90:21-2 Ja '16
- Draft gear committee's tests on draft channels. *il* *diags* Ry R 58:864-7 Je 17 '16; Abstract. Am Soc M E J 38:676-7 Ag '16
- Priebe draft gear. *il* *diags* Ry R 58:832-3 Je 10 '16
- Time and travel elements of the draft gear problem. H. C. Priebe. Ry R 58:777-8; 59:490-1 Je 3, O 7 '16
- See also* Car trucks

Draft tubes. *See* Turbines**Drafting boards**

- Adjustable drawing table. J. Peddie. *diags* Mach 22:334 D '15
- Arm rest for drawing board. R. G. Dickens. *il* Coal Age 10:389 S 2 '16
- Arrangement of drawing board for handling large drawings. M. Favor. *il* Coal Age 10: 890 N 25 '16
- Ball-bearing drawing board for freehand work. *il* Coal Age 8:1012 D 18 '15
- Kelsey tilting drafting table for the engineer. *il* Power 43:696-7 My 16 '16

Drafting instruments. *See* Drawing instruments**Drafting room practice**

- Drafting room. Int Marine Eng 21:253 My '16
- Drafting room efficiency. T. Price. Stevens Ind 33:148-50 Ap '16
- Drafting room in shipyards. H. C. Robinson. *diags* Int Marine Eng 21:11-12 Ja '16
- Drafting-room practice in a departmentalized shop. *il* *diags* Eng N 76:218-20 Ag 3 '16
- Forms for concrete work—some factors to be considered in their design. R. A. Sherwin. *diags* Concrete 8:157-9 Ap '16
- Handy drawing-room drawer. A. Smith. *diag* Coal Age 10:382 S 2 '16
- How to waterproof drawings. F. W. Salmon. Eng N 76:1037 N 30 '16

Drafting room practice—Continued

- Increasing drafting room efficiency by improved furniture design and arrangement. *il Eng & Contr* 46:194 Ag 30 '16
- Kinks-wrinkles; rights-wrongs; tool designing department of the National cash register co. *il Factory* 16:346-7 Ap '16
- Labor saving devices in the machine shop. A. A. Dowd. *il Eng M* 51:68-70 Ap '16
- Methods and cost of reproducing and reducing engineering drawings. J. N. Cohen. *Eng & Contr* 46:195-9 Ag 30 '16
- Minor drafting room devices. *il Eng & Contr* 46:192-3 Ag 30 '16
- New designs from old parts; indexing by sketch instead of name. F. W. Harris. *il Factory* 17:20-2 Jl '16
- New duplicating attachment; the mimeoscope. *il Ry Age* 60:163-4 Ja 28 '16
- Observations of a draftsman. F. Brunelleschi. *Brickb* 25:301-3 N '16
- Repairing a spoiled tracing. *Eng & Min J* 102:860 N '11 '16
- Routing drawings like orders. *Factory* 17:188-4 Ag '16
- Tabulated tool drawings; system of making drawings of tools and keeping records of tools made. C. A. Kuhn. *diags Mach* 23:139-40 O '16
- Using the pantograph for odd scales. T. H. Mycum. *Eng & Contr* 46:68-9 Jl 19 '16
- See also* Drawing instruments; Machinery—Design

Drain tile

- Costs in the manufacture of concrete drain tile. C. E. Sims. *Concrete* 8:201-2 My '16
- Dunn cement tile machine. *il Munic J* 40:497 Ap 6 '16
- Tile drainage by day labor and by the rod. *il map Eng N* 75:450-2 Mr 9 '16

Testing

- Drain tile investigation. *Concrete* 9:149 N '16
- Durability of cement drain tile in alkali soils. *Metal Work* 86:436 O 6 '16
- Proposed standard freezing and thawing tests for drain tile. *diags Eng & Contr* 46:46-7 Jl 12 '16
- Tests of effect of method of bedding upon the supporting strength of drain tile and sewer pipe. N. J. Schlick. *Eng & Contr* 45:394-6 Ap 26 '16

Drainage

- Canalization of half-million acre drainage district discloses canal-width limits. *il Eng Rec* 74:174-5 Ag 5 '16
- Common causes of railway slips and their prevention. *diags Eng N* 75:514-15 Mr 16 '16
- Construction plant controls minimum drainage ditch and levee sections. *il plan Eng Rec* 73:701-2 My 27 '16
- Drainage canal deterioration. W. A. O'Brien. *Eng N* 75:545 Mr 23 '16
- Drainage-ditch design tables. *Eng N* 75:1091 Je 8 '16
- Drainage drifts have apparently stopped slides at hillside grade separation. H. G. Wray. *il plan Eng Rec* 74:144-6 Jl 29 '16
- Drainage engineering. J. T. Stewart. *Eng N* 75:504 Mr 16 '16
- Drainage of railway roadbeds. M. C. Blanchard. *il Ry Age* 60:307-8 F 18 '16; Same. *Eng & Contr* 45:173-4 F 16 '16; Same. *Eng N* 75:240-2 F 3 '16
- Drainage to prevent erosion. B. Brooks. *Sci Am S* 82:45 Jl 15 '16
- Elimination of wet spots in railroad cuts. B. Brooks. *Eng Rec* 73:259-60 F 19 '16
- Land drainage by means of pumps. S. M. Woodward. *il diags map U S Agric Bul* 304:1-59 '15; Excerpt (Economic desirability of expert operation and maintenance). *Eng & Contr* 45:65-6 Ja 19 '16; Excerpt (Volume pumped and cost of pumping). *Eng & Contr* 45:94-6 Ja 26 '16; Excerpt (Land drainage with modern pumping machinery). *Metal Work* 85:39 Ja 14 '16
- Methods and cost of dredge excavation of drainage ditches. D. L. Yarnell. *Eng & Contr* 45:120-2 F 2 '16
- Plowing drainage ditches. F. C. Perkins. *il Sci Am S* 82:228 O 7 '16
- Practical notes on the design and construction of open drainage ditches. A. L. Goldenstar. *Eng & Contr* 45:263 Mr 15 '16

- Queen & Crescent has carried out extensive program to improve drainage of roadbed. J. T. Bowser. *il Eng Rec* 74:625-6 N 18 '16
- Run-off problem in draining irrigated lands. C. G. Elliott. *Eng & Contr* 44:481-2 D 22 '15
- 6th annual meeting of the National drainage congress, Jan. 19-21, 1916. *Eng N* 75:195 Ja 27 '16
- Surface-water ditch outlet. *diag Eng N* 75:851-2 My 4 '16
- Testing various soils for drainage properties. J. R. Haswell. *il Eng N* 76:211-14 Ag 3 '16
- Tile-drainage systems for irrigated land. *il Eng N* 75:88-9 Ja 13 '16
- Velocity coefficients for a dredged drainage canal. P. V. Hodges. *il Eng N* 76:1052-3 N 30 '16

See also Drain tile; Irrigation; Mine drainage; Roads—Drainage; Sewerage

Contracts

- Drainage in the southern section of Michigan; excerpt. A. D. Morehouse. *Eng N* 74:1165 D 16 '15

Cost

- Cost of laying tile drain on two jobs. H. R. Ferris. *diag Eng & Contr* 46:233 S 13 '16

California

- Automatic drainage gates lessen need of pumping. *il Eng Rec* 74:47 Jl 8 '16
- Design and test of a large reclamation pumping plant. G. C. Noble. *il diags map Am Soc M E J* 38:371-5, 723-4 My, S '16; Discussion. 38:561-2 Jl '16
- Gopher ditch construction in southern California. *il Eng & Contr* 46:231-2 S 13 '16

Dakotas

- Drainage in the Dakotas. *Eng N* 75:652-3 Ap 6 '16

England

- Reclaiming waste land in eastern England. *Metal Work* 86:435-6 O 6 '16

Florida

- Land drainage project in Florida. *Eng & Contr* 46:60-1 Jl 19 '16
- Reclaiming the Everglades of Florida. D. A. Willey. *il Sci Am* 115:258-9 S 16 '16

Illinois

- Electric pumping plant for land drainage. *Eng N* 76:419 Ag 31 '16
- Illinois drainage conference. *Eng N* 75:529 Mr 16 '16
- Spring lake drainage and levee district. *il Elec R & W Elec N* 69:759-60 O 28 '16
- Suggestions for needed drainage legislation in Illinois. J. F. Base. *Eng & Contr* 45:305 Mr 29 '16
- Tile drainage by day labor and by the rod. *il map Eng N* 75:450-2 Mr 9 '16

Iowa

- \$390,000 drainage project. *Eng & Contr* 46:95 Jl 26 '16

Louisiana

- Low-lift pumping plant uses distillate fuel. B. S. Nelson. *il diag plan Eng Rec* 74:437-8 O 7 '16

Massachusetts

- Design and construction of an intercepting drain to protect the surface water supply of Fall River, Mass. H. K. Barrows. *il diags Eng & Contr* 45:60-3 Ja 19 '16

Michigan

- Drainage in the southern section of Michigan; excerpts. A. D. Morehouse. *Eng N* 75:225 F 3 '16; *Eng & Contr* 45:172 F 16 '16
- Important details of land drainage work. A. D. Morehouse. *Eng N* 75:1010 My 25 '16

Minnesota

- Draining the Roseau river swamp in Minnesota. G. H. Herrold. *il map Eng N* 75:366-8 F 24 '16
- Land-drainage project in northern Minnesota. *plan Eng N* 75:866-7 My 4 '16

Drainage—Minnesota—Continued

Minnesota drainage law and engineers' compensation. R. H. Allison. Eng & Contr 45: 242 Mr 8 '16

Mississippi

Determination of roughness coefficient for Kutter's formula for dredged ditches in Bolivar county, Mississippi. C. E. Ramser. il Eng & Contr 46:229-31 S 13 '16

Missouri

Building six hundred miles of drainage ditches. il diags map Eng N 76:740-3 O 19 '16

Canalization of half-million acre drainage district discloses canal-width limits. il Eng Rec 74:174-5 Ag 5 '16

Improper inlets damage drainage ditches. il diag Eng Rec 74:226 Ag 19 '16

Mammoth electric draglines dig diversion channels and construct levees. il diag Eng Rec 73:826-8 Je 24 '16

Supreme court upholds Missouri drainage-district law. Eng Rec 72:761 D 18 '15

Netherlands

Draining north Holland after January's great flood. J. Spaander. il diags map Eng N 76: 773-7 O 26 '16

Inundation in Holland. il diags Engineer 122: 30 Jl 14 '16

New Jersey

Mosquito extermination in Panama and New Jersey. H. I. Eaton. il Boston Soc C E J 3: 263-70 Je '16

New Zealand

Draining great swamps in New Zealand. il map Engineer 122:218-19 S 8 '16

Southern states

Evolution of low-lift pumping plants in the Gulf coast country. W. B. Gregory. il diags map Am Soc M E J 38:359-70 My '16; Discussion. 38:553-8 Jl '16

Drainage, House

Method of computing size of house drain; requirements of plumbing codes in various cities compared. J. Graham. Dom Eng 74: 194-6 F 12 '16

Where and how to install floor drains. E. R. Porter. diags Dom Eng 74:37-8 Ja 8 '16

See also Plumbing

Drake, Alexander Wilson, 1843-1916

Father of the new wood-engraving. S. H. Horgan. por Inland Ptr 56:828-9 Mr '16

Draughting room practice. See Drafting room practice**Drawbridges**

Condition of iron in the old Keokuk bridge. G. C. Hinckley. il diag Eng N 76:400-3 Ag 31 '16

Conferences and commission rulings following Boston drawbridge accident. diags Elec Ry J 48:1102-6 N 25 '16

Greater safeguards needed for drawbridge openings. Eng N 76:952 N 16 '16

Improving drawbridge lighting. Elec R & W Elec'n 69:875 N 18 '16

Moving and placing American railway drawbridges by means of barges. il diag Engineer 120:520-1, 530 D 3 '15

New form of end lift used on Chelsea north draw. R. D. Gardner. il Eng N 75:1216-17 Je 29 '16

Operating machinery of the Willamette river drawbridge, near Portland, Oregon. B. B. Carter. il diags W Soc E J 21:529-55; Discussion. 556-64 S '16

Reconstruction of the Keokuk bridge. il diags Ry Age 61:97-100 Jl 21 '16

Special protection for a drawbridge. il Ry Age 61:793-4 N 3 '16

Strauss cantilever swing bridge lays claim to economy. diags Eng Rec 73:31 Ja 1 '16

Swing bridge over the Little Calumet river. il diags Ry Age 60:1551-3 Je 23 '16

See also Bridges; Bridges, Bascule; Bridges, Lift

Drawing

See also Drawing instruments; Geometrical drawing; Mechanical drawing

Color fixation

Color in crayon drawings fixed with this solution. T. A. Hayden. Eng Rec 74:164 Ag 5 '16

Drawing instruments

Cyclo-harmonograph; an instrument for drawing large classes of important higher plane curves. R. E. Moritz. il diags Sci Am S 82: 84-5 Ag 5 '16

Norman automatic multiple adjusting pen. il Mach 22:1092-3 Ag '16

Ruling pen rapidly adjustable for heavy or fine lines. il Eng N 76:273-4 Ag 10 '16

Triangle for use in tracing. H. G. Boutell. il Ry Mech Eng 90:568 N '16

Universal-angle drafting triangle. il Eng & Min J 100:1009 D 18 '15

Drawing room practice. *See* Drafting room practice

Dreadnoughts. *See* Warships

Dreams

Mechanism of a dream. J. B. Chapin. Sci Am S 81:390-1 Je 17 '16

Dredges

California dredge with two tailings stackers. L. H. Eddy. il diag Eng & Min J 101:169-72 Ja 22 '16

Combination hydraulic and dipper dredge. diag Eng & Contr 46:349 O 18 '16

Design and erection costs of steel knock-down dredge. il diags Eng N 76:6-7 Jl 6 '16

Dipper-dredge bearing that wears slowly. W. C. Lemen and C. G. Bochman. diag Eng N 75:836 My 4 '16

Dredge (Columbia) with geared turbine-driven pumps. il Int Marine Eng 21:244-5 My '16

Dredge troubles. Int Marine Eng 21:425-6 S '16

Electric dredge used on river improvement in Washington. J. H. Walter. il Eng N 75:441-3 Mr 9 '16

Electric maintenance dredge on Kaw river. il Eng N 75:563 Mr 23 '16

Electric power to dredge a relocated river channel. J. H. Walter. il Eng Rec 74:587-8 N 11 '16

High velocity in large hydraulic dredges. E. J. Dent; C. F. Franson; G. B. Massey. Eng Rec 73:714-15, 810; 74:117 My 27, Je 10, Jl 22 '16

History and development of gold dredging in Montana. H. Jennings. bibliog il diags U S Bur Mines Bul 121:1-41 '16

Inspecting and calking dredge hulls without drydocking. il Eng Rec 72:770 D 18 '15

Knock-down steel dredge. il diags Eng & Contr 46:71 Jl 19 '16

Large suction dredges depend on high velocity for extraordinary output. il diags plans Eng Rec 73:517-20 Ap 15 '16

Marigold all-steel dredge. Eng & Min J 102: 475-6 S 9 '16

Rescuing a dredge frozen up in the Mohawk river. A. E. Steere. Eng N 75:174-5 Ja 27 '16

Seagoing barge-emptying dredge for China. F. C. Coleman. il Eng N 76:170-1 Jl 27 '16

Testing of dredge bucket pins. R. A. Young. il Eng & Min J 102:377-9 Ag 26 '16; Abstract. Eng N 76:633 O 5 '16

Two more types of dredgers. il (supp) Engineer 122:233 S 15 '16

See also Excavating machinery

Dredging

Building six hundred miles of drainage ditches. il diags map Eng N 76:740-3 O 19 '16

C. & H. suction dredge in winter. C. H. Benedict. il Eng & Min J 102:90 Jl 8 '16

Canalization of half-million acre drainage district discloses canal-width limits. il Eng Rec 74:174-5 Ag 5 '16

Cost of dredging in 1914 and 1915 with U. S. dredge Michie. Eng & Contr 46:342-3 O 18 '16

New dredging records at Panama canal. Ry R 58:362 Mr 11 '16

Dredging—Continued

Practical notes on the design and construction of open drainage ditches. A. L. Goldenstar. *Eng & Contr* 45:263 Mr '16

See also Channels; Excavation; Gold dredging

Dried eggs. See Eggs, Dried

Driers. See Drying apparatus; Paint

Drift

See also Glaciers

Drill carriages

Tunnel drill carriages—their economic possibilities. S. P. Brown. *il diags Eng Rec* 73:77-81 Ja '16; Excerpts. *Eng M* 50:934-6 Mr '16

Drill halls. See Armories

Drill jigs. See Jigs

Drilling and boring (earth and rocks)

Anchor-bolt holes drilled by gasoline-air outfit. H. L. Hicks. *il Eng N* 76:54 Jl '13 '16

Diamond drilling at Sudbury. L. A. Parsons. *Eng & Min J* 102:381-2 Ag 26 '16

Drill barge on canal work in the Everglades. C. C. Phelps. *il Eng N* 76:704 O 12 '16

Drilling methods in driving 6-ft. tunnel. S. W. Symons. *il diag Eng N* 75:374-5 F 24 '16; Same cond. *Eng & Min J* 101:523 Mr 18 '16

Evolution of drilling rigs. R. B. Woodworth. *il diags Am Inst Min E Bul* 107:2247-312 N '15; Discussion. 113:353-9 My '16

Exploratory borehole. J. Steelman. *il Coal Age* 10:627-30 O 14 '16

First large borehole. E. B. Wilson. *Coal Age* 10:493 S 23 '16

Home-made boring jack. S. C. Reynolds. *il Coal Age* 8:972 D 11 '15

Investigations for dam and reservoir foundations. C. M. Saville. *il diags Eng N* 75:1231-4 Je 29 '16

Methods and costs of driving a 9x10-ft. drift. J. E. Hayden. *diags Eng & Contr* 44:451 D 8 '15

Novel device for making deviation tests or surveys in deep drill holes. *il Sci Am* 114:642 Je 17 '16

One-man roof driller. J. T. Reynolds. *il Coal Age* 9:163 Ja 22 '16

Photographic device determines paths of deep borings. *diags Eng Rec* 74:396 S 23 '16

Portable earth-boring machine of new design. *il Sci Am* 113:523 D 11 '15

Rifling of diamond-drill cores. W. R. Crane. *il Am Inst Min E Bul* 113:823-33 My '16; Discussion. 118:1862-9 O '16

Rock drilling with deep hole wagon rigs shows speed at low cost. C. A. Hirschberg. *il diag Eng Rec* 73:577-8 Ap 29 '16

Sampling placer-gravel deposits. I. Herr. *plans Eng & Min J* 102:261-2 Ag 5 '16

Successful soil-sampling tools. A. M. Shaw. *diags Eng N* 74:1228 D 23 '15; Same cond. *Eng & Min J* 101:223 Ja 29 '16

Tubing wound on reel without detaching—no couplers used. W. H. Hyde. *Eng Rec* 74:572 N 4 '16

Use of mud-laden water in drilling wells. I. N. Knapp. *diags Am Inst Min E Bul* 96:2783-93 D '14; Excerpts. *Eng & Contr* 46:54-5 Jl 19 '16; Discussion. *Am Inst Min E Bul* 101:1151-7 My '15

Useful knowledge for well drillers. M. C. Potter. *Munic Eng* 50:111 Mr '16

Well drilling in modern quarrying. S. R. Russell. *Eng & Contr* 46:155-6 Ag 16 '16

See also Petroleum—Well boring; Rock drills; Shaft sinking

Cost

Adit enlargement and alignment at the Alaska Juneau. J. Richards. *il Eng & Min J* 101:982 Je 3 '16

Churn-drill prospecting at Morenci, Ariz. W. R. Grunow. *il plan Eng & Min J* 101:969-74 Je 3 '16

Churn-drilling costs, Sacramento hill, Arizona. A. Notman. *il map Am Inst Min E Bul* 104:1677-90 Ag '15; Same cond. *Eng & Contr* 46:349-51 O 18 '16; Abstract. *Eng & Min J* 101:226-7 Ja 29 '16

Drilling and boring (metal working, etc.)

Drilling, reaming and straightening rifle barrels. W. H. Avis. *il Mach* 22:671-4 Ap '16

Effect of feed and diameter on cutting speed of drills; abstract. A. L. Jenkins. *Am Soc M E J* 38:266 Mr '16

Unusual boring operation. *diags Mach* 22:799 My '16

See also Machine shop practice

Drilling and boring machinery

Baker heavy-duty drilling and boring machine. *il diag Mach* 23:165-7 O '16

Baush inverted station type drilling machine. *il Mach* 22:352 D '15

Boring bar for engine cylinders. *il Iron Age* 97:721 Mr 23 '16

Bowlus chain-drive boring machine. *il Elec R & W Elec'n* 68:215 Ja 29 '16; *Elec W* 67:503 F 26 '16

Comparison between pneumatic and electric portable drills and geared hoists. A. Bassi. *Int Marine Eng* 21:424 S '16

Cylinder boring bar. *il Power* 43:514-15 Ap 11 '16

Diamond rifle barrel and receiver drilling machines. *il Mach* 22:607-9 Mr '16

Drilling machine design. *diags Mach* 22:844-5 Je '16

Forged cutter adjustable boring tool. *il Iron Age* 98:1222 N 30 '16

Heavy-duty portable pneumatic drill. *il Iron Age* 97:485 F 24 '16

Indexing drill jig. *il Mach* 23:55 S '16

Keeping multiple drilling machines at work. *il Mach* 22:595 Mr '16

Labor saving devices in the machine shop. A. A. Dowd. *il Eng M* 51:401-12 Je '16

Langelier motor valve sleeve multiple drilling machine. *il diag Mach* 23:81-2 S '16

Large horizontal boring machine. *il Iron Age* 98:575 S 14 '16

Machine for drilling forty-six holes at one operation. *il Sci Am* 115:15 Jl 1 '16

Mechanics upright drilling machine. *il diags Mach* 22:347 D '15

Minster heavy-duty vertical drilling machine. *il Iron Age* 98:1165 N 23 '16

Mosher adjustable drill brace. *il diag Mach* 22:437-8 Ja '16

Multiple drilling machine for motor sleeve valves. *il Engineer* 122:300 O 6 '16

Newton five spindle horizontal rail drilling machine. *il Iron Tr R* 59:695 O 5 '16; *Iron Age* 98:821 O 12 '16

Newton locomotive frame drilling machine. *il Iron Age* 97:1006 Ap 27 '16; *Mach* 22:819-20 My '16; *Iron Tr R* 58:1208-9 Je 1 '16

Newton special boring and turning machine. *il Iron Age* 97:141 Ja 13 '16

Newton torpedo flask boring machine. *il Mach* 22:522-3 F '16; *Iron Age* 97:192 Ja 20 '16

Pawling & Harnischfeger drill press. *il Mach* 22:725-6 Ap '16

Portable radial drilling machine. *il Iron Age* 97:424 F 17 '16

Recessing tool for horizontal boring mill. O. R. Winter. *diag Mach* 23:58 S '16

Sensitive drilling machine. *il Iron Age* 98:815 O 12 '16

Sipp special drilling machines. *il diags Mach* 22:1094-6 Ag '16

Small and light-weight electric drill. *il Elec R & W Elec'n* 67:1082 D 11 '15

Vertical drilling turret attachment. *il Iron Age* 98:1224 N 30 '16

See also Broaching; Jigs; Machine tools; Reamers

Drills. See Drilling and boring machinery**Drills, Rock. See Rock drills****Drinking fountains**

Public drinking fountains gain popularity. *il Eng Rec* 74:494 O 21 '16

Sanitary drinking fountain. *il Coal Age* 8:1060 D 25 '15

Sanitary water cooler with isolated ice chamber. C. W. Duncan. *il Elec Ry J* 47:616 Mr 25 '16

Driving boxes. See Locomotives—Driving boxes**Drop forgers' association, American. See American drop forgers' association****Drop-hammers. See Hammers**

- Drops**
Action of periodic forces on drops. Sci Am S 82:5 J1 1 '16
Method of drop measuring liquids and suspensions. R. Donald. Sci Am S 81:399-400 Je 17 '16
- Drossing apparatus.** See Metallurgical apparatus
- Drowning, Restoration from**
New system for restoring life to apparently drowned persons. Sci Am 114:527 My 20 '16
- Drug plants.** See Botany, Medical
- Drugs**
Control of drugs and medicines. Sci Am 115: 241 S 9 '16
Drugs from coal tar. Am Gas Light J 104: 115 F 21 '16
Government experts discourage American drug plant farming. L. W. Thavis. Sci Am 115: 333 O 7 '16
Medicinal chemicals in America; discussion. J Ind & Eng Chem 8:963-5 O '16
- Dry batteries.** See Electric batteries
- Dry blast process**
Commercial considerations concerning the blast furnace. J. E. Johnson, jr. Met & Chem Eng 15:243-4 S 1 '16
Details of a dry blast apparatus. J. B. Miles. diag Iron Tr R 58:193-4 Ja 20 '16
Profits from the dry blast. diags Iron Age 97: 198-9 Ja 20 '16
Two-stage air refrigerating plant for dry blast; abstract. Am Soc M E J 38:356 Ap '16
- Dry cell battery.** See Electric batteries
- Dry docks.** See Docks
- Dry goods**
See also Clothing trade; Hosiery; Textile industry and fabrics
- Dry rot**
Dry rot in factory timbers. J. W. H. Myrick. il Textile World 51:1885 Ap 15 '16
See also Wood preservation
- Drying**
Capacity of fans to carry saturated air. Heat & Ven 13:51-2 Ag; 43-4 S; 42-6 O '16
Efficiency of calcium chloride, sodium hydroxide and potassium hydroxide as drying agents. G. P. Baxter and H. W. Starkweather. Am Chem Soc J 38:2038-41 O '16
Warm air for industrial drying processes. G. C. Shadwell. il diag Metal Work 86:271-2 S 1 '16
See also Farm produce, Drying of
- Drying apparatus**
Driers. J. P. Morrison. diag Locomotive 31: 72-5 J1 16
Dryer for compressed air. C: Labbe. diag Eng & Min J 100:925 D 4 '15
Efficiency of air dryers. W. E. Wadman. J Ind & Eng Chem 8:755-6, 1075-6 Ag N '16
Efficiency of air-dryers. W. K. Lewis. J Ind & Eng Chem 8:570-2, 853-4 Je, S '16
Electro-plating engineering. C. B. Willmore. il diags Metal Ind n s 14:8-10 Ja '16
Mullen gravel heater and dryer. il Munic Eng 51:27-8 J1 '16; Eng & Contr 45:557 Je 21 '16; Munic J 40:775-6 Je 1 '16
Papermaking and its machinery. il diags Engineer 120:567-70, 578 D 17 '15
Reversed heat engine as a drying machine. P. J. Fox. J Ind & Eng Chem 7:1065-9 D '15; Abstract. Am Soc M E J 38:97-8 Ja '16
Steam-jacketed drying table for tailing samples. il Eng & Min J 100:969 D 11 '15
See also Farm produce, Drying of; Sand drying
- Drying apparatus (for textile fabrics)**
Drying narrow fabrics. diag Textile World 51:3203+ J1 15 '16
James Hunter machine co.'s agitating table dryer. il Textile World 51:24+, 751 D 4 '15, Ja 15 '16
Machinery for bleaching, dyeing, and printing cotton fabrics. il diags plan Engineer 121: 391-2 My 12 '16
- Drying of farm produce.** See Farm produce, Drying of
- Dublin, Ireland**
Dublin electricity supply. P. W. d'Alton. Engineer 122:411-12 N 10 '16
- Ducks**
Electricity on a duck farm. J. L. Springer. il Elec R & W Elec'n 69:24-5 J1 1 '16
- Ductility**
Relation of ductility to elongation. H. Friedmann. diags Mach 22:508-9 F '16
- Duggan, George Eric, 1862-**
New president of the Canadian society of civil engineers. por Eng N 75:339 F 17 '16
- Duilio (steamship)**
Duilio; how Italy promotes her South American trade. il Sci Am S 82:24-5 J1-8 '16
- Duluth, Minnesota**
City replanning in Duluth. W. B. Patten. map Eng N 76:645-6 O 5 '16
Morgan Park—a beautiful steel-mill town. il plans map Iron Age 97:48-52 Ja 6 '16
Warm air heating in a northern city. il diag plans Metal Work 85:606-9+ My 5 '16
- Dump cars**
Granby's 10-ton dump car. il diags Eng & Min J 101:354 F 19 '16
Low-side automatically-controlled dump car. il diag Elec Ry J 47:571-2 Mr 18 '16
Rock dump car. il Eng & Contr 46:431 N 15 '16
Types of dump-cars used on construction work. il Eng N 76:581-5, 640-4 S 28-O 5 '16
Well-balanced dump cars made on New York subway contract. il Eng Rec 72:736 D 11 '15
- Dumping appliances**
Automatic car-closing device. L. A. Rossman. il Eng & Min J 102:822-3 N 4 '16
Design of plants for dumping coal cars. J. F. Springer. il Ry Age 60:1221-2 Je 9 '16
Double-end skip dump. diag Eng & Min J 102: 506 S 16 '16
Side-dump cart for backfilling. diag Eng N 75:126 Ja 20 '16
See also Dump cars
- Duncan, Louis, 1861-1916**
Sketch. por J Fr Inst 182:120-2 J1 16
- Dunwoody industrial institute, Minneapolis, Minn.**
New half-million dollar trade school. Dom Eng 77:149 N 4 '16
- Duplex houses**
Typical two-family house complies with Salem's strict building code. C. D. Gilbert. il diags plan Concrete Cem 8:24-6 Ja '16
Western type of two-family house. il plans Bldg Age 38:19-26 F '16
- Durant, Oklahoma**
Sewerage
Electrolytic sewage-treatment tests at Durant. il plan Eng N 76:547-8 S 21 '16
- Dust**
Atmospheric pollution in English and Scottish towns. J. B. C. Kershaw. il Engineer 120: 473-5 N 19 '15; Same cond. Met & Chem Eng 13:967-71 D 15 '15
Problem of city dust. R. P. Bolton. Am Soc Heat & V E 21:225-31 '15
Quantity and composition of street dust. R. T. Fox. Eng & Contr 46:104-5 Ag 2 '16
Studies in air cleanliness. G. C. Whipple and M. C. Whipple. diags Am Soc Heat & V E 21:211-24 '15; Same cond. Heat & Ven 12:23-8 J1 '15
See also Dust removal; Grain dust; Rock dust; Street cleaning
- Dust collectors.** See Dust removal
- Dust explosions**
Cereal dust explosions. D. J. Price. Colliery 35:671-2 J1 '15; Abstract. Sci Am 114:15 Ja 1 '16
Dust explosions and fires in grain separators in the Pacific northwest. D: J. Price and E. B. McCormick. il diags 11 pls U S Agric Bul 379:1-22 '16
- Dust prevention**
Progress reports of experiments in dust prevention and road preservation, 1915. U S Agric Bul 407:1-71 '16
See also Roads—Surface treatment; Roads. Oiled
- Dust removal**
Dust catcher. diag Metal Work 84:744 D 10 '15
New system of dust separation and collection. il diags Engineer 121:485 Je 9 '16

Dust removal—Continued

- Problem in dust conveying. *Metal Work* 85: 525, 557 Ap 14, 28 '16
- Size of dust separator. *diag Metal Work* 85: 891-2 Je 30 '16
- Taking cinders and dust from the gases in chimneys. *diag Heat & Ven* 13:52-3 Jl '16
- Transport of material in the form of dust; abstracts. T. C. Cloud. *Am Soc M E J* 38:263 Mr '16; *Eng & Min J* 101:357 F 19 '16; *Sci Am S* 81:29 My 6 '16
- Wedge dust-collecting chamber. *il Eng & Min J* 101:646 Ap 8 '16
- See also* Air washers

Dutch East Indies

- Cotton goods in the Dutch East Indies. R. M. Odell. *il map U S Bur For & Dom Com* 120: 1-55 '16

Dye factories

- Buildings for dye manufacture. P. R. Moses. *plan Eng M* 52:90-4 O '16
- Design of factories for the manufacture of dyestuffs. P. R. Moses. *plan Met & Chem Eng* 15:293-6 S 15 '16

Dye industry

- American dyestuff manufacture; discussion. *J Ind & Eng Chem* 8:950-2 O '16
- American textile manufacturer; his attitude toward American-made dyes. F. Dannenrth. *J Ind & Eng Chem* 8:848-9 S '16
- Analysis of Dr. Morton's recent dyestuff report. J. M. Matthews. *Textile World* 51:1053, 1059 F 12 '16
- British dyestuff manufacture. *Met & Chem Eng* 15:416-18 O 1 '16
- Census of colors; what the government is doing to aid the dyestuff industry. T. H. Norton. *Sci Am* 114:578+ Je 3 '16
- Census of the artificial dyestuffs used in the United States. T. H. Norton. *J Ind & Eng Chem* 8:1039-48 N '16
- Coal-tar dye industry, past, present, and future; with review of legislation. B. C. Hesse. *Met & Chem Eng* 15:120-4 Ag 1 '16
- Crucial factors in the dyestuff problem. J. M. Matthews. *Textile World* 51:581, 583 Ja 15 '16
- Developing of the American by-product industry. *Gas Age* 38:68-9 Jl 15 '16
- Dye bill debate. *Textile World* 51:3185 Jl 15 '16
- Dye industry as a factor of national security. *Sci Am* 114:574 Je 3 '16
- Dye problems are heard by Congress committee. *Textile World* 51:827, 829-30 Ja 22 '16
- Dye situation. B. C. Hesse. *Textile World* 51: 3279+ Jl 22 '16
- Dyestuff legislation with anti-dumping bill. *Textile World* 51:1363+ Mr 11 '16
- Dyestuff report. T. H. Norton. *Textile World* 51:4083-4 S 23 '16
- Dyestuff situation. C. H. Herty. *Textile World* 51:1755, 1757 Ap 8 '16
- Dye stuff situation. J. M. Matthews. *Textile World* 51:2616 My 27 '16
- Dyestuff situation in the United States at the close of 1915. T. H. Norton. *J Ind & Eng Chem* 8:166-72 F '16
- Dyestuff situation in United States, Nov. 1915. T. H. Norton. *U S Bur For & Dom Com* 111: 1-19 '16
- Dyestuff tariff before Congress. *Met & Chem Eng* 15:65-6 Jl 15 '16
- Dyestuffs and silk. *Textile World* 51:1531+ Mr 25 '16
- Explanation of dyestuff handicaps. J. M. Matthews. *Textile World* 51:1203+ F 26 '16
- Gas by-products discussed at American chemical society convention. *Gas Age* 38:331-2 O 2 '16
- Great capital outlay would be required to establish dye industry in this country. F. H. Wagner. *Am Gas Light J* 105:19 Jl 10 '16
- Hearings on proposed dyestuff tariff. *Met & Chem Eng* 14:125-9 F 1 '16
- How may the permanent success of our dye industries be secured? G. H. Bruce. *Sci Am* 114:473+ My 6 '16
- Importance of the chemical industry. *Am Ind* 17:20-3 S '16
- Increase in domestic dyestuff manufacture. *Textile World* 51:4623 O 28 '16

- Industrial preparedness for peace; the possibility of a permanent dyestuff industry. W. P. Cohoe. *il Sci Am* 114:220+ F 26 '16
- Logwood embargo. *Textile World* 51:115+ , 185+ , 339 D 11-18 '15, Ja 1 '16
- Manufacture of aniline dyes in America. I. F. Stone. *Textile World* 51:5021 N 25 '16
- Necessity for an American dyestuffs industry to aid export trade in textiles. H. Howard. *J Ind & Eng Chem* 8:273-5 Mr '16; Same cond. *Textile World* 51:891+ Ja 29 '16; Abstract. *Met & Chem Eng* 14:180 F 15 '16
- New dyestuffs bill. *Textile World* 51:3103+ Jl 8 '16
- New phase in the dyestuff tariff fight before Congress. *Met & Chem Eng* 15:55-6 Jl 15 '16
- Next year bulk of artificial dyes consumed in country will be of domestic production. *Am Gas Light J* 105:53 Jl 24 '16
- Problem of dyestuff supply. *Textile World* 51: 571+ Ja 15 '16
- Progress of English color-making. *Textile World* 51:512-13+ Ja 15 '16
- Relationship of explosives to dyestuffs. W. Beckers. *Textile World* 51:5023 N 25 '16
- Status of new tariff law on dyestuffs. *Met & Chem Eng* 15:283-4 S 15 '16
- Warning against colors; laundry issues circular advocating white goods. *Textile World* 51:1207+ F 26 '16
- See also* Coal-tar colors

Dyeing. See Dyes and dyeing**Dyeing machines**

- Burr inking and weighting machines. C. J. Curtis. *diags Textile World* 51:1557 Mr 25 '16
- Dyeing machine for heavy piece goods. *Textile World* 51:1963+ Ap 22 '16
- Dyeing machine for hosiery. *diag Textile World* 51:4639 O 28 '16
- "Hurricane" rotary-circulating dyeing and bleaching machine. *il Textile World* 51:761 Ja 15 '16
- Piece dyeing machine. *diag Textile World* 51: 4259+ S 30 '16
- Recent patent. *diag Textile World* 51:2573, 3735+ My 27, Ag 26 '16
- Sample dyeing machine. *il Textile World* 51: 3031 Jl 1 '16
- Yarn dyeing machine. *diag Textile World* 51: 271+ D 25 '15

Dyes and dyeing

- Aniline oxidation black on hosiery. E. C. T. Bick. *Textile World* 51:289+ D 25 '15
- Census of the artificial dyestuffs used in the United States. T. H. Norton. *J Ind & Eng Chem* 8:1039-48 N '16
- Dyeing half woollens. E. C. T. Bick. *Textile World* 51:1959 Ap 22 '16
- Dyeing of sulphur colors. C. M. Whittaker. *Textile World* 51:4251+ S 30 '16
- Dyeing union goods evenly and economically. L. J. Matos. *il Textile World* 51:3369+ Jl 29 '16
- Mononitro phenyl ethers. H. I. Jones and A. N. Cook. *bibliog Am Chem Soc J* 38: 1534-50 Ag '16
- Natural dyestuffs; a revival of long abandoned methods. E. S. Chapin. *Sci Am S* 82:318-19 N 11 '16
- Padding tan shades. *diags Textile World* 51: 1561+ Mr 25 '16
- Reconstruction in dyeing. E. S. Chapin. *Textile World* 51:2085, 2089, 2091 Ap 29 '16
- Revived manufacture of vegetable dyes. *Am Ind* 16:33-4 My '16
- Use and varieties of vegetable dyes. C. R. Delaney. *Textile World* 51:5023+ N 25 '16
- Use of natural dyewares. *Textile World* 51:285 D 25 '15
- Vegetable dyes of India. *Sci Am* 115:241 S 9 '16

See also Bleaching; Calico printing; Coal-tar colors; Cutch; Dye industry; Dyeing machines; Indigo; Logwood; Vijao

Cotton

- Cochineal carmine on cotton. *Textile World* 51:272 D 25 '15
- Cotton piece-goods dyeing. S. Rivelis. *Textile World* 51:2567+ My 27 '16
- Dry process of coloring raw stock. W. H. Butler. *Textile World* 51:2941+ Je 24 '16

Dyes and dyeing—Cotton—Continued

Dyeing and finishing cotton hosiery. Textile World 51:1141+ F 19 '16

Dyeing cotton with sulphur black. Textile World 51:1559 Mr 25 '16

Tinting cotton goods. Textile World 51:344 Ja 1 '16

Silk, Artificial

Bleaching and dyeing artificial silk. Textile World 51:4833 N 11 '16

Testing

Fastness of dyes. Textile World 51:1225+ F 26 '16

Tests for a fast dye. Textile World 51:1305+ Mr 4 '16

Tests for fastness of dyes. E. C. T. Bick. Textile World 51:192 D 18 '15

Use of flame arc in dye testing. Textile World 51:2679 Je 3 '16

Wool

Application of alizarines to worsted yarns. W. C. Robb. Textile World 51:3731 Ag 26 '16

Bisulphate of soda (nitre cake) in dyeing. L. J. Matos. Textile World 51:1565 My 27 '16

Important factors in the mordanting of wool. W. H. Butler. Textile World 51:4253+ S 30 '16

Notes of a practical wool dyer. Textile World 51:1073+ F 12 '16

Purification of the wastes from the finishing of woolen goods. H. R. Crohurst and A. D. Weston. Eng & Contr 45:561-2 Je 21 '16

Some faults in the dyeing of woolen goods. Textile World 51:4635 O 28 '16

Dyestuffs. See Dye industry; Dyes and dyeing
Dynamics

See also Aerodynamics; Mechanics; Thermodynamics

Dynamite

Ditching and digging pole holes with dynamite. T. M. Knight. diags Eng & Contr 46: 66-8 Jl 19 '16

Making a dynamite thaw kettle from an oil can and a barrel. J. H. Carse. il Eng & Contr 45:91-2 Ja 26 '16; Same. Ry R 57:829 D 25 '15; Same. Eng & Min J 101:222 Ja 29 '16; Same. Eng Rec 73:28 Ja 1 '16

Wood flour; manufacture and uses. F. W. Kressmann. Met & Chem Eng 14:373 Ap 1 '16; Same. Sci Am S 82:229 O 7 '16

Dynamo-electric machines. See Electric motors

Dynamometer

Design of a water brake. W. H. Herschel. Power 44:133-4 Jl 25 '16; Same cond. Eng N 76:378-9 Ag 24 '16

Dynamometer for determining horsepower of tractors; abstract. il Am Soc M E J 38:429-30 My '16

Electric dynamometer calibrated in horsepower for gas-engine testing. C. V. Hill. il diags Elec W 67:1245 My 27 '16

Fan dynamometer. diags Sci Am S 82:221 S 30 '16

Fan dynamometer; abstract. J. L. Hodgson. Am Soc M E J 38:505 Je '16

Small electric dynamometer. il Elec W 66:1275 D 4 '15

Sources of error in cradle dynamometer tests; abstract. M. Le Pen and J. Villey. Am Soc M E J 38:504 Je '16

Testing aeroplane motors with a fan dynamometer. L. Hodgson. diags Automobile 34: 627-9 Ap 6 '16

See also Electric testing

Dynamometer cars

Baltimore and Ohio adds second dynamometer to car. Eng Rec 73:762 Je 10 '16

Coal mine dynamometer car. diags Coal Age 10:759-60 N 4 '16

Comparative friction test of two types of coal mine cars. P. B. Liebermann. il diags Am Inst Min E Bul 114:1057-65 Je '16

Southern railway high capacity dynamometer cars. il plans Ry Age 60:92-5 Ja 21 '16; Same. Ry Mech Eng 90:62-6 F '16

Swiss railways dynamometer car. H. A. Gaudy. il diags Ry Age (Mech ed) 89:606-12 D '15

Dynamos

Alternator excitation and exciters. G. Fox. il Power 44:166-8 Ag 1 '16

Armature copper losses in rotary converters and double current generators. L. H. A. Carr. Inst E E J 54:49-52 D 1 '15

Building up the voltage. G. Fox. Power 43: 734-5 My 23 '16

Calculation of sudden short circuit phenomena of alternators. N. S. Diamant. diags 6 pis Am Inst E E Pro 34:2043-79 S '15; Discussion. 35:479-83 Ap '16

Correcting polarity reversal of exciters. B. W. David. diags Elec W 67:884 Ap 15 '16

Difficulties of design of high-speed generators. A. B. Field. il Inst E E J 54:65-76 D 15 '15; Discussion. 54:77-83, 171-86, 296-303 D 15 '15 Ja 1, F 1 '16

Dynamo experiences. C. V. Hull. Power 44: 103-4 Jl 18 '16

Effects of power factor on voltage regulation. F. A. Annett. diags Power 44:85-7 Jl 18 '16

Excitation of synchronous machines. T. Schou. Elec W 67:368-71 F 12 '16

High-speed generators; abstract. F. A. Kuyser. diags Elec W 67:386 F 12 '16

High-speed 6000 k.w. turbo-alternator at Manchester. il Engineer 120:599 D 24 '15

High-voltage direct-current generator. Elec R & W Elec N 67:1082 D 11 '15

Importance of proper installation of generator meter shunts. W. R. Davis. diags Elec W 67: 266 Ja 29 '16

Induction generator. H. M. Phillips. Power 44:301-2 Ag 29 '16

Is the induction generator practical? C. P. Steinmetz. Gen Elec R 19:808-9 S '16

Mechanical design of turbo-generators. W. Knight. Power 44:554-7 O 17 '16

New turbo-generator unit for Boston Elevated. Elec Ry J 47:830 Ap 29 '16

Operating direct-current generators in parallel. H. G. Gibson. diags Power 43:907-9 Je 27 '16

Operation of engine-driven electrolytic generators. Eng & Min J 101:730 Ap 22 '16

Operation of interpole direct-current machines. J. Lebovici. diags Elec W 67:594-5, 651-3 Mr 11-18 '16

Parallel operation of direct-current generators. A. M. Bennett. diags Power 43:283-5, 316-17 F 29-Mr 7 '16

Parallel operation troubles. H. E. Ford. diags Power 43:44-5 Ja 11 '16

Pole-face losses. F. W. Carter. diags Inst E E J 54:168-70 Ja 1 '16

Predetermination of the performance of dynamo-electric machinery. M. Walker. diags Inst E E J 54:245-65 F 1 '16; Discussion. 54: 265-73, 389-402, 426-31 F 1-Mr 1 '16

Rational temperature guarantees for large A-C generators. F. D. Newbury. Am Inst E E Pro 35:1597-1610 N '16

Regulation of direct-current generators. H. M. Phillips. Power 43:362-4 Mr 14 '16

Small geared turbine-driven generating units. il Power 43:210-11 F 15 '16

Small hydroelectric generator. il Elec W 67: 673 Mr 18 '16

Synchronizing alternators. T. M. Gray. Power 44:105 Jl 18 '16

Terry duplex exciter set. il Power 44:83 Jl 18 '16

Trouble with directly connected exciters due to polarity reversal. G. Rutherford. diags Elec W 67:658-9 Mr 18 '16

1250 kilowatt d.c. turbo-generator. il diags Engineer 120:626, 631-2 D 31 '15

Universal generating set for isolated service. il Elec R & W Elec N 68:608 Ap 1 '16

Waterwheel driven generators. H. G. Reist. il Gen Elec R 19:446-8 Je '16

Wave-shapes obtaining with alternating-current generators working under steady short-circuit conditions. A. E. Clayton. Inst E E J 54:84-103 D 15 '15; Discussion. 54:445-6 Mr 1 '16

See also Armatures; Automobiles—Electric equipment; Commutators; Electric motors; Switchboards

Testing

Test of large hydro-electric generators. R. Treat. diags Gen Elec R 19:464-70 Je '16

E

- Earth**
 Earth from the geophysical standpoint. J. F. Hayford. *Sci Am S* 81:258-9 Ap 22 '16
 Exploring the earth's interior with electric waves. *Sci Am* 114:61 Ja 8 '16
 Structure of the earth. G. A. J. Cole. *Sci Am S* 81:162-3, 186 Mr 11-18 '16
See also Geology; Glacial period; Magnetism; Terrestrial; Mines and mineral resources; Ore deposits; Volcanoes
- Earth, Age of**
 Radioactive evidence of the age of the earth. *Sci Am* 115:94 Jl 29 '16
- Earth pressure**
 Apparatus for determining soil pressures devised; abstracts. A. E. Goldbeck and E. B. Smith. *plan Eng Rec* 74:48 Jl 8 '16; *Eng & Contr* 46:180-1 Ag 23 '16; *Eng N* 76:339 Ag 24 '16
 Earth pressures tested in subway excavation. M. Miller. *diag Eng Rec* 74:291 S 2 '16
 High unit pressures found in experiments on distribution of vertical loading through sand. M. L. Enger. *il diags Eng Rec* 73:106-8 Ja 22 '16; Same. *Eng & Contr* 45:53-6 Ja 19 '16; Same. *Ry R* 58:129-32 Ja 22 '16; Same cond. *Ry Age* 60:321-3 F 18 '16; Abstract. *Am Soc M E J* 38:267-8 Mr '16; Discussion. R. L. Sackett; M. L. Enger. *eng Rec* 73:398 Mr 18 '16
 Reading the secrets of the earth. A. Salisbury. *il Sci Am* 115:455 N 18 '16
 Results of some tests to determine the distribution of vertical pressure through sand. R. B. Fehr and C. R. Thomas. *diags Eng & Contr* 45:306-9 Mr 19 '16
 Soil-bearing tests determined loading on Chicago track-elevation work. R. H. Ford. *il Eng Rec* 74:652-3 N 25 '16
 Steel girders and concrete struts for foundations. Bell Parkway building, Philadelphia. *diags Eng Rec* 74:259-60 Ag 26 '16
 Tests of soil and methods of underpinning buildings adjoining subway construction on William street, New York. J. E. Greathead. *diags Eng & Contr* 44:477-81 D 22 '15
 Tests show earth pressures one-half hydrostatic. *Eng N* 75:1138 Je 15 '16
- Earth resistance**
 Earth resistance and its relation to electrolysis of underground structures. B. McCollum and K. H. Logan. *diags U S Bur Stand Tech Pa* 26:1-48 '15
 Method of measuring earth resistivity. F. Wenner. *diags U S Bur Stand Bul* 12:469-78 F 3 '16
- Earth roads.** *See* Roads, Earth
- Earth slides.** *See* Earthwork—Slides; Landslides
- Earth temperature**
 Frozen soil conditions as affecting water services. J. B. Marvin. *Eng & Contr* 45:167-8 F 16 '16
 Rock temperatures in deep tunnels recorded. E. Lauchli. *Eng Rec* 72:782-3 D 25 '15
- Earth tremors**
 Cause of Rand earth tremors. A. C. Key. *Eng & Min J* 101:995-6 Je 3 '16
- Earthing.** *See* Electric distribution—Grounding
- Earthquakes**
See also Volcanoes
- Earthquakes and building**
 Severe earthquake in Nevada. H. P. Boardman. *il Eng N* 74:1222-3 D 23 '15
 Structural engineering and earthquakes. J. C. Branner. *Eng Rec* 72:780-1 D 25 '15
- Earths, Rare**
 New rare earth compounds. A. J. Grant and C. James. *Am Chem Soc J* 37:2652-4 D '15
 Periodic system and the properties of the elements. W. D. Harkins and R. E. Hall. *Am Chem Soc J* 38:177-9 F '16
 Progress of rare earth industry in England; abstract. S. J. Johnstone. *Met & Chem Eng* 15:357 S 15 '16
 Separation of the rare earths giving the more soluble double sulfates from Brazilian monazite sand. C. James and A. J. Grant. *Am Chem Soc J* 38:41-7 Ja '16
- Separation of yttrium from the yttrium earths. J. P. Bonardi and C. James. *Am Chem Soc J* 37:2642-5 D '15
- Solution of the cerium group oxides by certain acids. W. S. Chase. *J Ind & Eng Chem* 8:239-40 Mr '16
See also Cobalticyanide; Radioactive substances; Yttrium
- Earthwork**
 Engineering contractor talks on earth shrinkage. S. P. Baird. *Eng N* 76:850-1 N 2 '16
See also Dams; Dredging; Earth pressure; Embankments; Excavation; Fortification; Foundations; Grading; Railroads—Earthwork; Retaining walls; Tamping machines; Tunnels and tunneling
- Slides**
 Common causes of railway slips and their prevention. *diags Eng N* 75:514-15 Mr 16 '16
 Unusual slide of canal lining and its repair. *il diags Eng N* 76:1031-4 N 30 '16
See also Panama canal—Slides
- Tables, calculations, etc.**
 Autographic cross-sectioning by a new instrument. J. Airey. *il diag Eng N* 75:1092-4 Je 8 '16
 Diagram for computing earthwork. M. P. Taylor. *Eng & Contr* 46:58 Jl 19 '16
- East river.** *See* Coenties Reef
- Eastern supply association**
 Annual meeting, New York, Oct. 18. *Dom Eng* 77:119-21 O 28 '16; *Metal Work* 86:539 O 27 '16
- Ecclesiastical architecture.** *See* Church architecture
- Echinodermata**
 Production of light by animals. U. Dahlgren. *il J Fr Inst* 181:377-400 Mr '16
- Ecology**
 Animal ecology. A. B. Klugh. *Sci Am S* 82:183 S 16 '16
- Econograph**
 Device for recording data in a boiler plant. G. B. Willcox. *diag Am Soc M E J* 38:231-2 Mr '16
- Economic conditions.** *See* Business conditions
- Economics**
See also Apprentices; Banks and banking; Business; Capital; Credit; Government ownership; Government regulation of industry; Industry; Investments; Manufactures; Prices; Profit; Profit sharing; Strikes; Tariff; Taxation; Trade unions; Transportation; Wages
- Economizers.** *See* Fuel economizers
- Ecuador**
Industries and resources
 Ecuador develops oil industry. *Eng & Min J* 102:294 Ag 12 '16
 Mining in Ecuador. J. W. Mercer. *Eng & Min J* 101:343-6 F 19 '16
- Eddy currents**
 Effects of eddy currents. W. N. Cross. *diags Power* 44:119-21 Jl 25 '16
 Pole-face losses. F. W. Carter. *diags Inst E E J* 54:168-70 Ja 1 '16
- Edinburgh, Scotland**
Rapid transit
 Edinburgh tramways. *Engineer* 122:413 N 10 '16
- Edison, Thomas Alva, 1846-**
 Edison day—incandescent-lamp anniversary. Oct. 21. *por Elec R & W Elec'n* 69:711 O 21 '16
 Edison; the genius. C. P. Steinmetz. *Illum Eng Soc* 11:623-4 no 6 '16
 Personal experiences during the industrial upheaval that followed the outbreak of the war. *Sci Am* 115:497 D 2 '16
 Presentation of honorary membership to Thomas Alva Edison. J. W. Lieb. *Illum Eng Soc* 11:601-21 no 6 '16
 Work in the field of illumination with relation to the contemporary state of the art. J. W. Lieb. *Gen Elec R* 19:332-41 My '16

Edison illuminating companies, Association of.
See Association of Edison illuminating companies

Edmonton, Alberta

Edmonton public utilities. *Munic J* 41:483 O 19 '16

Education

Educational extension by practical men. S. H. Bunnell. *Iron Age* 98:820-1 O 12 '16
Relation of art to education. F. L. Ackerman. *Am Inst Arch J* 4:190-3 My '16

See also Business education; Colleges and universities; Corporation schools; Evening and continuation schools; Industrial education; Manual training; Military education; Railroad education; Study; Technical education; Trade schools; Vocational education

Education, Engineering. See Engineering education

Education, Industrial. See Industrial education

Education, Medieval

Medieval universities. C. S. Cooper. *Sci Am S* 82:22-3 JI 8 '16

Education, Military. See Military education

Education, Naval. See Naval education

Education, Technical. See Technical education

Education and state

Federal aid for vocational education. H. E. Miles. *Am Ind* 16:20-1 Ap '16

Edwards, New York

Zinc mining district near Edwards, D. H. Newland. *il map Econ Geol* 11:623-44 O '16;
Abstract. *Eng & Min J* 102:938-9 N 25 '16

Efficiency

Industrial lessons from the German war machine. C. E. Knoepfel. *Eng M* 50:666-73, 853-9; 51:58-65 F-Ap '16

Industrial preparedness for peace; the meaning of national efficiency. M. Chipman. *Sci Am* 114:78+ Ja 15 '16

Efficiency, Industrial

Common sense as a basis for efficiency. G. H. Shepard. *Ind Management* 52:381-91 D '16

Effect of temperature and humidity. F. S. Lee and E. L. Scott. *Metal Work* 86:175-6 Ag 11 '16

Efficiency testing in train service. H. E. Haanel. *Ry Age* 61:155-7 JI 28 '16

Efficiency testing on the Pennsylvania. *Ry Age* 61:279-83, 312-13, 330-2 Ag 18-25 '16

How the old man beat them to it. H. D. Wolcomb. *Ry Age (Mech ed)* 89:639-41 D '15

How to manage brain workers. H. G. Tregillus. *Factory* 17:23-4 JI '16

How to study factory efficiency. J. K. Mason. *Eng M* 51:394-400, 542-7 Je-JI '16

Importance of leadership. H. L. Gantt. *Eng M* 51:17-21 Ap '16

Industrial lessons from the German war machine. C. E. Knoepfel. *Eng M* 51:58-65, 167-76 Ap-My '16

Manager and workmen. H. L. Gantt. *Iron Age* 98:1128-9 N 16 '16

Training the apprentice; the time element in shop work. T. H. Alvord. *Mach* 22:756 My '16

Waste in the management of public utility power plants. F. W. Collins. *Eng M* 49:888-93 S '15; Same. *Am Gas Light J* 104:108-9 F 14 '16

See also Factory management; Foundry management; Industrial service movement; Office management; Scientific management; Time study

Bibliography

Bibliography of book reviews in Dec. and Jan. magazines on commerce, efficiency, business methods, accounting, etc. *Special Libraries* 7:13-14 Ja '16

Efflorescence

Causes of efflorescence on masonry. W. C. Dumas. *Bldg Age* 38:37-8 N '16

Efflorescence on brick work. A. R. Cornwell. *Arch Rec* 40:495 N '16

Egg containers

Parcel post egg carrier. *il Sci Am* 115:18 JI 1 '16

Eggs

Reducing our waste in eggs. M. E. Pennington, H. C. Pierce and H. L. Shrader. *il Sci Am S* 81:292-3 My 6 '16

Eggs, Dried

Preparation of frozen and dried eggs. *Sci Am* 114:557 My 27 '16

Egypt

Antiquities

Recent research work among Egyptian ruins. *Sci Am* 115:359 O 14 '16

Egyptian Sudan. See Sudan, Egyptian

Eight-hour day. See Hours of labor

Ejectors

Hydraulic ejectors for grit removal merit trial in sewer maintenance. J. H. Gregory. *il diags Eng Rec* 73:141-2 Ja 29 '16

Seattle uses ejector to clean sewer catch basins. A. W. Howard. *il Eng Rec* 72:690 D 4 '15

Steam-jet refrigeration. J. C. Bertsch. *il diag Power* 43:58-60 Ja 11 '16

Ejectors, Sewage. See Sewage ejectors

Elastic limit

Proportional limit identical with elastic limit; discussion at annual meeting of American society for testing materials. *Eng N* 76:89 JI 13 '16; *Iron Age* 98:65 JI 6 '16; *Eng Rec* 74:78-9, 331 JI 15, S 9 '16

Surface tension effects in the inter-crystalline cement in metals and the elastic limit. F. C. Thompson. *Engineer* 121:376 My 5 '16

Elasticity

See also Strains and stresses; Strength of materials

Elaterite

Paint that won't come off. *Sci Am* 115:497 D 2 '16

Recent uses of Utah elaterite. E. Palmer. *Eng & Min J* 102:856 N 11 '16

El Dorado

Early maps relating to the search for El Dorado. *Sci Am S* 82:279 O 28 '16

Electric accidents. See Electricity, Injuries from

Electric alarms

Electric siren. *il Elec W* 67:59 Ja 1 '16

See also Fire alarms

Electric apparatus and appliances

Basis for present and future growth in electric heating. W. S. Hadaway. *Elec W* 67:29-30 Ja 1 '16

Connectors for emergency power circuits and for meter reading. *il Elec R & W Elec'n* 68:256-7 F 5 '16

Electric test indicator for surface gage. *il Sci Am* 114:130 Ja 29 '16

Electrically fitted serving table given with \$60 worth of appliances. *il Elec W* 67:46 Ja 1 '16

Electricity as a silent waiter in restaurants. *Sci Am* 114:429 Ap 22 '16

Price list of appliances shows installment terms. *Elec R & W Elec'n* 69:283 Ag 12 '16

Pricing appliances on the basis of their revenue-producing values. H. W. Reed. *Elec W* 68:577-8 S 16 '16

Robinson electric blanket. *Elec R & W Elec'n* 67:1085 D 11 '15

See also Annunciators; Armatures; Automobiles—Electric equipment; Condensers (electricity); Detectors; Dishwashing machines; Electric; Dynamos; Electric batteries; Electric bells; Electric circuit breakers; Electric controllers; Electric current rectifiers; Electric equipment; Electric furnaces; Electric fuses; Electric heating, Industrial; Electric irons; Electric lamps; Electric machinery; Electric meters; Electric motors; Electric precipitation; Electric protective apparatus; Electric railroads—Equipment and supplies; Electric shops; Electric shovels; Electric signals; Electric standards; Electric toys; Electric transformers; Electricity in mining; Electricity in the home; Electricity on the farm; Electromagnets; Factories—Electric equipment; Fans, Electric; Fire alarms; Induction coils; Interrupters; Oscillators; Ozonators; Phase advancers; Reactors; Relays; Rheostats; Spark plugs; Switch-boards; Synchroscopes; Voltage reducers; Vreeland oscillator

Electric apparatus and appliances—Continued**Exhibitions**

- Electrical exposition and motor show of 1916. *Sci Am* 115:391+ O 28 '16
 New York electrical exposition and motor show; list of exhibitors. *Elec R & W Elec'n* 69:710 O 21 '16

Testing

- Testing of household appliances. H. A. Cozzens, jr. *diag Elec W* 67:1460-1 Je 24 '16

Electric arc

- Arc phenomena. A. G. Collis. *il diags Am Inst E E Pro* 34:2081-2100 S '15; Discussion. 35: 612-22 My '16
 Arcs in gases between non-vaporizing electrodes. G. M. J. Mackay and C. V. Ferguson. *il diag J Fr Inst* 181:209-16 F '16; Excerpts. *Elec W* 67:889-90 Ap 15 '16
 Arcs; talking and oscillatory. *Gen Elec R* 19: 1134-5 D '16
 Electric arc for cutting scrap metal. *diag Elec R & W Elec'n* 68:1168-9 Je 24 '16
 Electric arc in vapors and gases at reduced pressures. W. A. Darrah. *il diags Met & Chem Eng* 13:915-18 D 1 '15; Same. *Sci Am S* 81:29-30 Ja 8 '16; Abstract. *Illum Eng Soc* 11:933-5 no 8 '16
 Electric conductors. C. P. Steinmetz. *Gen Elec R* 19:614-18 Jl '16
 Electric oscillatory phenomena of speaking arc. J. P. Van Zandt. *diag Elec W* 67:1415 Je 17 '16
 Flame arc in chemical manufacture. W. R. Mott and C. W. Bedford. *diags J Ind & Eng Chem* 8:1029-35 N '16
 Luminous efficiency of the radiation of the electric arc. E. Karrer. *J Fr Inst* 182:538 O '16; Same. *Elec W* 68:869 O 28 '16
 Why an arc produces oscillations. *Gen Elec R* 19:160 F '16

See also Electric lamps, Arc

Electric association, Pennsylvania. *See* Pennsylvania electric association

Electric automobiles. *See* Electric trucks; Electric vehicles

Electric batteries

- Calomel standard cell. G. F. Lipscomb and G. A. Hulett. *Am Chem Soc J* 38:20-7 Ja; Corrections. 38:889 Ap '16
 Electrolytic cell, patent by W. E. Greenawalt. *diags Met & Chem Eng* 15:654-5 D 1 '16
 Endurance tests of dry batteries. *Elec Ry J* 47:968 My 20 '16
 German standards for pocket lamp batteries; abstract. *Elec W* 68:822 O 21 '16
 Hywatt efficient and compact dry battery. *il Elec R & W Elec'n* 69:608 S 30 '16
 Improved dry cell battery. H. R. Palmer. *diags Sci Am S* 82:133 Ag 26 '16
 New way of converting light into electrical energy. T. W. Case. *diag Engineer* 122:154-5 Ag 18 '16
 New wet cell. *diag Engineer* 122:330-1 O 13 '16
 Patented three-volt dry battery. *il Elec R & W Elec'n* 67:1126 D 18 '15
 Peril of the submarine. *Sci Am* 114:120 Ja 29 '16
 Production of small dry batteries; abstracts. C. F. Burgess. *Elec W* 68:658 S 30 '16; *Met & Chem Eng* 15:477-8 O 15 '16
 Water and weather-proof batteries. *il diag Elec R & W Elec'n* 68:37 Ja 1 '16; *Elec W* 67:111-12 Ja 8 '16

See also Storage batteries

Electric bells

- Electric timing and program system. *il Elec W* 66:1389 D 18 '15

See also Electric signals

Electric boilers. *See* Boilers—Electric heating

Electric cables

- Cable pot-heads for disconnecting and non-disconnecting service. *il Elec W* 66:1442 D 25 '15
 Cable suitable for industrial plant subway system. H. D. Austin. *Elec W* 66:1415-16 D 25 '15
 Conductor joints that prevent syphoning. R. I. Elkin. *diags Elec W* 68:133 Jl 15 '16
 Construction of high-tension cable joints. P. Torchio. *il Elec W* 67:873-5 Ap 15 '16

Data on stranding of flexible cables. *Elec W* 68:816 O 21 '16

Design of high-pressure distribution systems. J. R. Beard. *diags Inst E E J* 54:125-41 Ja 1 '16; Discussion. 54:225-44, 291-5, 379-88, 431-8 Ja 15-Mr 1 '16

Determining equivalent gage of stranded cable. A. B. Goldstene. *Elec W* 68:524 S 9 '16

Difficult submarine crossing at Waco, Texas. *il Elec R & W Elec'n* 68:188 Ja 29 '16

Economizing in duct space by use of sector cable. *il Elec W* 67:427-9 F 19 '16

Effect of high continuous voltages on air, oil, and solid insulations. F. W. Peek, jr. *il diag Am Inst E E Pro* 35:773-90 Je '16; Abstract. *Elec W* 68:331-2 Ag 12 '16; Discussion. *Am Inst E E Pro* 35:1501-8 O '16

Effect of high temperature on lead-covered cable. J. O. Kammerman. *Elec W* 67:941-2 Ap 22 '16

Effects of electrolysis on engineering structures. A. F. Ganz. *Stevens Ind* 32:323-8 O '15

Electric wire and cable terminology. *il U S Bur Stand Circ* 37:1-13 '15; Excerpt (Electric conductors). *Sci Am S* 80:384 D 11 '15

Elimination of belt insulation on multiple conductor cables. F. J. White. *Elec W* 68:382 Ag 19 '16

Fault in bitumen cables. *Elec W* 68:34-5 Jl 1 '16

High-tension cable joints; abstract. C. Beaver. *il Elec W* 68:486-7 S 2 '16

Insulation of joints in high-tension cables. *il diag Elec W* 67:553-60 Mr 4 '16

Interruptions caused by cable faults. J. W. Truesdell. *Power* 44:358-9 S 5 '16

Locating grounds on lead sheathed cables. W. T. Roberts. *diag Power* 44:60 Jl 11 '16

Losses in cables armored with steel tape. W. I. Middleton and E. W. Davis. *Elec W* 68:1003-6 N 18 '16

Losses in cables at high frequencies. E. F. Northrup and R. G. Thompson. *il diags J Fr Inst* 182:1-17 Jl '16

Making cable joints with formed insulation. *il Elec W* 68:573-4 S 16 '16

Minimizing electrolysis of cable sheaths. *diags Elec W* 67:769-70 Ap 1 '16

Protecting cables in manholes from explosion of adjacent cables. A. F. Hovey. *Elec Ry J* 48:1068 N 18 '16; Same. *Elec W* 68:1009 N 18 '16

Pulling-in lead-covered underground cables. H. S. Percival. *diags Elec R & W Elec'n* 69:119-20 Jl 15 '16

Rules for insulation tests on underground d.c. feeders. *Elec Ry J* 48:286 Ag 12 '16

Safety measures for cable splicers. R. A. Paine, jr. *Elec W* 68:180 Jl 22 '16

Salvaging abandoned old cable proves profitable. *diag Elec R & W Elec'n* 69:598 S 30 '16

Sector or clover leaf cable. *diag Elec Ry J* 47:373 F 19 '16

Solderless connectors. *diags Power* 44:383 S 12 '16

Steel conductors for transmission lines. H. B. Dwight. *Am Inst E E Pro* 35:1259-72 Ag '16; Excerpts. *Power* 44:502-3 O 3 '16; Abstract. *Elec Ry J* 48:898-9 O 21 '16

Temperature rise of insulated lead-covered cables. R. C. Powell. *Am Inst E E Pro* 35: 1281-1306 Ag '16

Testing of underground cables with continuous current. O. L. Record. *diags Inst E E J* 54: 608-16 Je 1 '16; Excerpt (High-tension cable tests). *Elec W* 67:665-6 Mr 18 '16; Discussion. *Inst E E J* 54:616-38 Je 1 '16

Tests to determine heating of underground cables. H. A. Cozzens, jr. *Elec W* 68:953-4 N 11 '16

Three-conductor electric cables; abstract. M. Hoechstaedter. *diags Elec W* 67:1427-8 Je 17 '16

See also Cables, Submarine; Electric distribution; Electric wire and wiring; Insulation; Telephone cables

Electric cars. *See* Motor cars (railroad)—Storage battery

Electric cells. *See* Electric batteries

Electric circuit breakers

- Automatic reclosing circuit breaker relay. *il* Coal Age 9:500 Mr 18 '16; Elec R & W Elec'n 68:480-1 Mr 11 '16; Elec W 67:618 Mr 11 '16
- Breaking circuits carrying large alternating currents; abstract. J. Biermanns. *diag* Elec W 66:1326 D 11 '15
- Concrete cells for circuit breakers and busbars. C. H. Sanderson. *il* *diags* Elec W 67:1402-4 Je 17 '16
- Ingenious emergency operation of remote-control circuit-breaker. P. Justus. *diags* Elec R & W Elec'n 69:898 N 18 '16
- Large capacity tank type circuit breakers. *il* Elec Ry J 48:287 Ag 12 '16; Elec W 68:336 Ag 12 '16; Elec R & W Elec'n 69:527 S 16 '16; Power 44:417 S 19 '16; Iron Tr R 59:780 O 19 '16
- Largest circuit-breakers made give excellent service. *il* Elec R & W Elec'n 68:938-40 My 20 '16
- Rating of oil circuit breakers. E. M. Hewlett. *Am Inst E E Pro* 35:1641-3 D '16
- Rupturing capacities of oil circuit breakers. S. Q. Hayes. *Am Inst E E Pro* 35:1621-6 D '16
- 20,000-amp. direct-current circuit breaker. *il* Elec W 68:635 S 23 '16; Elec R & W Elec'n 69:607 S 30 '16; Power 44:526 O 10 '16
- Type of oil circuit breaker. *il* Eng M 52:sup4 O '16

Electric circuits

- Analysis of frequency in oscillatory circuits. G. W. O. Howe. *diags* Elec W 68:368-70 Ag 19 '16
- Economics of group system of street lighting. M. Ferry and E. M. Tompkins. *maps* Elec W 68:177-8 Jl 22 '16
- Emergency motor connections. R. L. Hervey. *plan* Power 44:430 S 19 '16
- Loose-leaf sheets a convenience for troublemen. *diags* *maps* Elec R & W Elec'n 68:645 Ap 8 '16
- Master-switch control circuits for large residences. F. Latzer. *diags* Elec W 67:606-7 Mr 11 '16
- Method of determining the correctness of polyphase wattmeter connections. W. B. Kouwenhoven. *bibliog* *diags* *Am Inst E E Pro* 35:159-82 F '16; Discussion. 35:721-5 My '16
- Operating direct-current generators in parallel. H. G. Gibson. *diags* Power 43:907-9 Je 27 '16
- Operating series gas-filled lamps from 110-volt circuit. O. Sorenson. *diag* Elec W 67:1364 Je 10 '16
- Outline of theory of impulse currents. C. P. Steinmetz. *Am Inst E E Pro* 35:1-20 Ja '16; Discussion. 35:681-91 My '16
- Parallel operation troubles. H. E. Ford. *diags* Power 43:44-5 Ja 11 '16
- Progress of the investigation of inductive interference by the joint committee on inductive interference; with discussion. *Am Inst E E Pro* 35:401-13 Mr '16
- Uniform load approached by bulk supply. W. N. Ryerson. *il* *plan* *map* Elec W 67:697-700 Mr 25 '16
- Wiring for series lighting circuits. T. Croft. *diags* Elec R & W Elec'n 68:377-9 F 26 '16
- See also* Electric conductors; Electric currents; Electric distribution; Electric lines; Electric transmission

Electric codes. *See* Electric engineering—Laws and regulations

Electric companies. *See* Electric service companies

Electric conductivity

- Chemical composition versus electrical conductivity. C. G. Fink. *Met & Chem Eng* 15:464-5 O 15 '16
- Conductance of solutions of certain iodides in isoamyl and propyl alcohols. F. G. Keyes and W. J. Winninghoff. *diags* *Am Chem Soc J* 38:1178-87 Je '16
- Conductivities of certain organic acids in absolute ethyl alcohol. H. H. Lloyd, J. B. Wiesel and H. C. Jones. *Am Chem Soc J* 38:121-31 Ja '16

Conductivity and dissociation of some rather unusual salts in aqueous solution. C. Watkins and H. C. Jones. *Am Chem Soc J* 37:2626-36 D '15

Conductivity of flames; abstract. C. W. Heaps. *Elec W* 68:381 Ag 19 '16

Electrically conducting paint. M. James. *Elec W* 67:51 Ja 1 '16

Electron theory of metallic conduction. Elec R & W Elec'n 69:535-6 S 23 '16

Extrapolation of conductance values. M. Randall. *Am Chem Soc J* 38:788-92 Ap '16

Influence of the potassium ion and of the calcium ion upon the ferri-ferrocyanide potential. E. P. Schoch and W. A. Felsing. *Am Chem Soc J* 38:1928-47 O '16

Measurement of electrolytic conductivity; the theory of the design of conductivity cells. E. W. Washburn. *diags* *Am Chem Soc J* 38:2431-60 N '16

Specific conductivity of pure water in equilibrium with atmospheric carbon dioxide. J. Kendall. *Am Chem Soc J* 38:1480-97 Ag '16

Studies in conductivity; further studies on the behavior of the alkali metal formates in (anhydrous) formic acid. H. L. Schlesinger and C. Coleman. *Am Chem Soc J* 38:271-80 F '16

Studies in the measurement of the electrical conductivity of solutions at different frequencies. W. A. Taylor and S. F. Acree. *diags* *Am Chem Soc J* 38:2396-430 N '16

Variable conductors. C. C. Bidwell. Sibley J 39:255-6 My '16

See also Electric conductors; Electric measurement; Electric resistance

Electric conductors

Application of telephone transmission formulae to skin-effect problems. G. W. O. Howe. *diags* *Inst E E J* 54:473-80 Ap 1 '16

Calculation of skin effect in strap conductors. H. B. Dwight. *Elec W* 67:593-4 Mr 11 '16

Characteristics of iron and steel conductors. C. E. Oakes and W. Eckley. *Elec W* 68:760-2 O 14 '16

Circular mil formula derived. Power 44:240-1, 363-4 Ag 15, S 5 '16

Direct-current wiring tables. C. P. Poole. Power 44:268-9 Ag 22 '16

Does force act on electric currents or conductors? E. B. Rosa. *Elec R & W Elec'n* 69:300-1 Ag 12 '16

Electric conductors. C. P. Steinmetz. *Gen Elec R* 19:358-68, 611-19 My, Jl '16; Excerpt (Pyroelectric conductors). *Elec W* 67:1315-16 Je 3 '16

Experimental researches on skin effect in conductors. A. E. Kennelly, F. A. Laws and P. H. Pierce. *il* *diags* *Am Inst E E Pro* 34:1749-1809; Bibliog. 1809-14 Ag '15; Discussion. 35:609-11 My '16

Inductance of conductors at close spacings. F. B. Silsbee. *Elec W* 68:125-6 Jl 15 '16

Influence of the war upon electric wiring practice in Germany; notes on the use of zinc conductors. *Elec W* 67:984-5 Ap 29 '16

Iron and steel electrical conductors. *Engineer* 122:125-6 Ag 11 '16

Iron and steel wire for transmission conductors. T. A. Worcester. *Gen Elec R* 19:488-92 Je '16

Method of making a solderless conductor joint. E. Piepel. *diags* *Elec W* 67:379 F 12 '16

Precautions when using copper substitutes. *Elec W* 68:22 Jl 1 '16

Production and properties of electrolytic copper. B. Welbourn. *il* *diag* *Inst E E J* 54:54-62 D 1 '15; Excerpts. *Engineer* 120:484-5 N 19 '15

Proper current densities. B. B. Hood. *Met & Chem Eng* 15:571-3 N 15 '16

Relative carrying capacity of different metals for electric currents greater than fusing currents; abstract. F. C. Wagner. *Elec R & W Elec'n* 68:55 Ja 8 '16

Skin effect factors for iron wire. J. D. Ball. *Gen Elec R* 19:493-6 Je '16

Steel conductor rails: British steel conductor rail practice and standard methods of testing; abstracts. C. H. Ridsale. *diags* *Elec W* 68:187-8 Jl 22 '16; *Iron Age* 98:650-1 S 21 '16

Electric conductors—Continued

Steel conductors for transmission lines. H. B. Dwight. *Am Inst E E Pro* 35:1259-72 Ag '16; Excerpts. *Power* 44:502-3 O 3 '16; Abstract. *Elec Ry J* 48:898-9 O 21 '16

See also Busbars; Electric cables; Electric distribution; Electric transmission; Electric wire and wiring; Insulation; Lightning conductors; Skin effect

Electric conduits

Advantages of a circular manhole in industrial-plant systems. D. W. Blakeslee. *diag Elec W* 67:498 F 26 '16
Cast-iron junction for iron pipe and clay duct. *diags Elec Ry J* 47:280 F 5 '16
Compression tests of electric conduits. W. E. King. *Eng Rec* 74:200-1 Ag 12 '16
Conduit evolution. A. E. Braddell. *Elec R & W Elec'n* 68:164-5, 253-4 Ja 22, F 5 '16
Construction of an electrical subway crossing on a highway bridge. C. M. Hartley. *il Eng & Contr* 46:78-9 Jl 26 '16
Data on cost of overhead and underground construction. L. W. Moxey, jr. *Elec W* 66:1378-9 D 13 '15
Fiber duct conduit at Worcester. *il Elec Ry J* 46:1182 D 11 '15
Guide for proper spacing of underground conduits at entrance to manhole. *diag Elec R & W Elec'n* 69:514 S 16 '16
How 334 ft. of jute-covered cable stuck fast in tile duct was removed. E. R. Martin. *Elec W* 66:1373 D 18 '15
How to find conduit for combination of wire sizes. *Elec R & W Elec'n* 68:515 Mr 18 '16
Making wiring system flexible. *il Elec W* 68:137 Jl 15 '16
Moving vitrified duct line with screw jacks. W. M. Stieve. *diag Eng Rec* 74:632 N 18 '16
Outlet boxes for electrical conduits in concrete. A. M. Wolf. *Eng N* 74:1238 D 23 '15
Supporting conduit between buildings. E. Kemp. *il Elec R & W Elec'n* 68:245 F 5 '16
Underground distribution system at Calgary, Canada. J. N. Lightbody. *il diags plan Elec W* 67:431-2 F 19 '16
Underground distribution systems. G. J. Newton. *map Am Inst E E Pro* 35:1193-1208 Ag '16
Underground system for an industrial plant. H. D. Austin. *diags Elec W* 66:1253-5 D 4 '15
See also Electric cables; Electric conductors; Electric distribution; Electric wire and wiring

Electric contractors

Better merchandising a keynote in contractors' plans. J. R. Galloway. *Elec W* 67:33 Ja 1 '16
Business building for electrical contractors. G. W. Hill. *Elec R & W Elec'n* 68:292-3 F 12 '16
Business hints for contractor and dealer. G. D. Crain, jr. *Elec R & W Elec'n* 66:682; 67:188-9, 475-6, 1065-6, 1148-9; 68:81-2, 117-18, 249-50 Ap 10, Jl 31, S 11, D 11, 25 '15, Ja 8-15, F 5 '16
Business hints for the electrical dealer. G. D. Crain, jr. *Elec R & W Elec'n* 68:473-4, 816-17, 1084-5 Mr 11, My 6, Je 10 '16
Common fallacy regarding profits of contractors. G. W. Hill. *Elec R & W Elec'n* 67:1015-16 D 4 '15
Contractor's house-wiring estimate sheet. *Elec W* 67:491-2 F 26 '16
Co-operation from contractor's standpoint. A. C. Lyons. *Elec R & W Elec'n* 69:205-6 Jl 29 '16
Cost of stock-room leakage, and who should pay. G. D. Crain, jr. *Elec W* 66:1422-3 D 25 '15
Direct-method job cost for contractors. G. W. Hill. *Elec R & W Elec'n* 68:513-15 Mr 18 '16
Electrical contractor as a dealer. E. L. Burdick. *il Elec R & W Elec'n* 68:202-3 Ja 29 '16
Estimating hints for the contractor. G. W. Hill. *Elec R & W Elec'n* 68:198-9 Ja 29 '16
Figuring expenses and profits in contracting. O. G. Pack. *Elec W* 67:1466-7 Je 24 '16
How harmony was brought to Wilkes-Barre. F. E. Hollis. *il Elec W* 67:484-6 F 26 '16
Job-cost system for contractors. A. R. Schmidt. *Elec R & W Elec'n* 68:599 Ap 1 '16
Keeping down the contractor's "overhead." *Elec W* 67:930 Ap 22 '16

Proper handling of accounts payable. G. W. Hill. *Elec R & W Elec'n* 68:861 My 13 '16
Reason why—what was it? G. W. Hill. *Elec R & W Elec'n* 68:986-7, 1127 My 27, Je 17 '16
Testing the fitness of the electrical contractor. *Elec W* 67:712 Mr 25 '16
Unit time-card and pay-roll system. G. W. Hill. *Elec R & W Elec'n* 68:681-3 Ap 15 '16

Licenses

Licensing of electrical contractors. *il Elec R & W Elec'n* 69:100-5 Jl 15 '16

Electric control

Automatic operation of a small hydroelectric plant in Boone, North Carolina. D. R. Shearer. *il diag Elec W* 67:1454; 68:226-7 Je 24, Jl 29 '16
Automatic operation of mine hoists as exemplified by the new electric hoists for the Inspiration consolidated copper co. H. K. Burch and M. A. Whiting. *il Am Inst Min E Bul* 111:583-96 Mr '16; Same. *Gen Elec R* 19:763-70 S '16
Centrally controlled electric haulage systems. F. E. Woodford. *il Eng Soc W Pa* 31:584-97 O '15; Same cond. *Sci Am S* 82:40-2 Jl 15 '16; Discussion. *Eng Soc W Pa* 31:598-608 O '15
Combination surface heater-control outfit. *il Elec R & W Elec'n* 69:776 O 28 '16; *Elec W* 68:875 O 28 '16
Electric control equipment for machine tools. *il Engineer* 121:136 F 11 '16
Electrically operated remote-control switch. *il Elec R & W Elec'n* 69:130 Jl 15 '16; *Elec W* 68:39-40 Jl 1 '16
Large shell lathe with automatic electric control. *il diags Engineer* 122:124-5 Ag 11 '16
Monogram-clock control apparatus. *il Elec R & W Elec'n* 68:344-5 F 19 '16; Same. *Elec W* 67:147 F 19 '16
Obtaining power-house control of distant circuits. *il diags Elec R & W Elec'n* 69:128-9 Jl 15 '16; Correction. 69:215 Jl 29 '16
Pole-top installation for feeding and controlling series lighting circuits. R. A. Paine, jr. *diags Elec W* 68:83 Jl 8 '16
Push-button control system for cylinder printing presses. *il plan Elec W* 67:561-2 Mr 4 '16
12-volt emergency control battery. F. T. Coldwell. *diag Elec W* 67:1166 My 20 '16
See also Electric controllers; Electric motors—Control; Electric railroads—Control; Electric switches; Voltage reducers; Voltage regulation

Electric controllers

Automatic controller for automobile lighting systems. *il diag Elec W* 67:786-7 Ap 1 '16
Double-acting power and speed regulating controllers. *il Elec W* 67:336 F 5 '16
Electrical repair shop methods as applied to platform controller maintenance. E. D. Ransom. *diags Elec Ry J* 47:701-2 Ap 8 '16
Large automatic controller. *il Elec Ry J* 48:1120 N 25 '16; *Elec W* 68:1068 N 25 '16; *Elec R & W Elec'n* 69:862 N 11 '16
Lilly hoisting controller. *il Eng & Min J* 101:688 Ap 15 '16
Portable controller proves a time-saver. H. C. Ebeling. *il diags Elec Ry J* 48:685-6 S 30 '16
Practical talks on controllers. *diags Power* 44:448-50, 518-20, 583-5, 644-6, 715-19 S 26, O 10, 24, N 7, 21 '16
Reversible rope-operated crane and hoist controllers. *il Elec R & W Elec'n* 68:344 F 19 '16
See also Electric motors; Electric motors—Control; Electric railroads—Control; Rheostats

Electric cooking

Analysis of electric cooking. H. O. Swoboda. *Elec R & W Elec'n* 69:670-5, 713-17 O 14-21 '16
Cooking by wire in southern California. S. M. Kennedy. *Elec W* 67:1169-70 My 20 '16
Developing the electric range load. P. L. Miles. *Elec R & W Elec'n* 68:712-13 Ap 22 '16
Distribution system for domestic power service from commercial and engineering standpoints. C. H. Hoge and E. R. Perry. *Am Inst E E Pro* 35:1273-80 Ag '16
Electric cafeteria at Sacramento, Cal. *il Elec W* 67:932-3 Ap 22 '16

Electric cooking—Continued

- Electric cooking a profitable day load in Illinois communities. J. P. Clayton. Elec W 67: 1112 My 13 '16
- Electric cooking as a load builder; discussion at convention of Illinois state electric association. Elec R & W Elec'n 68:402-3 Mr 4 '16
- Electric cooking in a British railway restaurant. Elec W 67:544 Mr 4 '16
- Electric cooking progress. il Elec R & W Elec'n 69:199-200 JI 29 '16
- Electric cooking to the housewives' rescue. A. E. Smith. Elec W 66:1262-3 D 4 '15
- Features of domestic electric cooking and heating. H. B. Peirce. diag Am Inst E E Pro 35:1209-16 Ag '16; Same cond. Elec R & W Elec'n 69:468-9 S 9 '16
- Future of electric cooking assured. G. A. Hughes. Elec R & W Elec'n 68:710-11 Ap 22 '16
- Gas versus electricity for cooking purposes. S. C. Bratton and G. D. Mantle. Gas Age 38:527-9, 574-6 N 15-D 1 '16
- How electricity helped a bankrupt restaurant man to come back to business success. il Elec W 67:1367 Je 10 '16
- How to secure electric cooking business. il Elec R & W Elec'n 68:897-904 My 20 '16
- Motor-driven egg-boiling device. il Elec W 67: 281 Ja 29 '16
- N. E. L. A. 39th annual convention; abstracts of reports and discussions. Elec W 67:1228-9 My 27 '16
- Notable electric cooking installation in England. il Elec R & W Elec'n 68:634 Ap 8 '16
- Promotion of electric cooking. Elec W 67: 1284-5 Je 3 '16
- Proving the economy of electric cooking. il Elec W 68:375-6 Ag 19 '16
- Restaurant range, Hood River, Ore., as an advertisement for electric cooking. A. S. Hall. il Elec W 67:604-5 Mr 11 '16
- Ruvio electrical egg cooker. diag Elec R & W Elec'n 69:214 JI 29 '16; Elec W 68:194 JI 22 '16
- Using the electrolysis principle to cook eggs. il diag Sci Am 115:285 S 23 '16
- Way to sell electric-cooking service. J. E. Bullard. Elec R & W Elec'n 69:637-8 O 7 '16
- Westinghouse hot plates. il Elec R & W Elec'n 67:1168 D 25 '15
- Why the electric range has come to stay. R. A. MacGregor. Elec R & W Elec'n 69:551-2 S 23 '16
- Winning the electric-cooking load. S. M. Kennedy. il Elec W 68:1044-6, 1097-1100 N 25-D 2 '16
- World's largest electric kitchen. il Sci Am S 81:180 Mr 18 '16

See also Electric ovens; Electric stoves

Electric cranes. *See* Cranes, derricks, etc.

Electric current converters

- Principles of phase converter. il diags Power 43:869-70 Je 20 '16
- Shunt phase converter. W. J. Foster. il diags Power 44:745-7 N 28 '16
- Single-phase power production. E. F. W. Alexander and G. H. Hill. il diags Am Inst E E Pro 35:1453-65 O '16; Same. Gen Elec R 19:1097-1103 D '16; Same cond. Power 44: 668-70 N 7 '16; Abstract. Elec W 68:1013-14 N 18 '16

See also Rotary converters

Electric current rates. *See* Electric power—Rates

Electric current rectifiers

- Analysis of vapor-rectifier losses. W. Tschudy. diag Elec W 67:1199-12 Je 17 '16
- Electric rectifiers with oxide cathodes; abstract. A. Wehnelt. Elec W 67:500 F 26 '16
- Hot cathode argon gas filled rectifier. G. S. Meikle. il diags Gen Elec R 19:297-304 Ap '16; Abstract. Elec W 67:1174-5 My 20 '16
- Imperial rectifier with synchronous commutation. il Elec W 68:636 S 23 '16
- Mercury-arc rectifier for charging small storage batteries. C. M. Green. il diag Gen Elec R 19:805-7 S '16
- Methods for alloying sparking when rectifying alternating current. diags Elec W 68:802 O 21 '16

Patent granted for air blast alternating current rectifier. diag Elec W 68:120 JI 15 '16

Production of constant high potential with moderate power capacity. A. W. Hull. il diags Gen Elec R 19:173-81 Mr '16; Excerpt. Engineer 121:484-5 Je 9 '16

Series lighting rectifier problems. Elec W 68: 750 O 14 '16

Electric currents

- Calculation of the maximum force between two coaxial circular currents. F. W. Grover. U S Bur Stand Bul 12:317-73 F 3 '16
- Does force act on electric currents or conductors? E. B. Rosa. Elec R & W Elec'n 69:300-1 Ag 12 '16
- Harmonics in transformer magnetizing currents. J. F. Peters. diags Am Inst E E Pro 34:1657-73 Ag '15; Discussion. 35:422-30 Mr '16
- Outline of theory of impulse currents. C. P. Steinmetz. Am Inst E E Pro 35:1-20 Ja '16; Discussion. 35:681-91 My '16
- Power factor explained. F. A. Annett. diags Power 44:4-7 JI 4 '16

See also Eddy currents; Electric circuits; Electric conductivity; Electric conductors; Electric distribution; Electric measurement; Electric meters; Electric testing; Electric transformers; Electric transmission; Stray currents

Electric currents, Alternating

- Alternating-current motors. J. Lebovici. diags Elec R & W Elec'n 68:720-3, 766-70, 812-14 Ap 22-My 6 '16
- Amplitude and phase of the higher harmonics in oscillograms. G. W. O. Howe. Inst E E J 54:19-24 D 1 '15
- Application of a polar form of complex quantities to the calculation of alternating-current phenomena. N. S. Diamant. bibliog Am Inst E E Pro 35:989-1010 Je '16; Excerpts. Elec W 68:283 Ag 5 '16; Discussion. Am Inst E E Pro 35:1529-31 O '16
- Approximate method of calculating short-circuit current in an alternating-current system. H. R. Wilson. diags Gen Elec R 19:475-9 Je '16
- Calculating wire sizes for alternating-current circuits. L. W. Moxey, jr. Elec W 66:1322-4 D 11 '15
- Calculation of sudden short circuit phenomena of alternators. N. S. Diamant. diags 6 pls Am Inst E E Pro 34:2043-79 S '15; Discussion. 35:479-83 Ap '16
- Fundamental principles of alternating current. F. A. Annett. diags Power 42:789-91, 852-4, 897-8; 43:182-4, 211-13, 538-41 D 7, 21-28 '15, F 8-15, Ap 18 '16
- Influence of frequency of alternating or infrequently reversed current on electrolytic corrosion. E. McCollum and G. H. Aihborn. il diags U S Bur Stand Tech Pa 72:1-31 '16; Same. Am Inst E E Pro 35:371-97 Mr '16; Abstract. Elec R & W Elec'n 68:493 Mr 18 '16; Conclusions. Elec Ry J 47:563-4 Mr 18 '16; Conclusions and discussion. Met & Chem Eng 14:389-91 Ap 1 '16; Discussion. Am Inst E E Pro 35:1113-30 JI '16
- Measurement of alternating current wave form. R. Bown. il diags Sibley J 30:165-70 F '16
- Mechanical analogies in electricity and magnetism. W. S. Franklin. diags Gen Elec R 19: 264-71 Ap '16
- Mode of studying damped oscillations by the aid of shrinking vectors. D. Robertson. Inst E E J 54:24-34 D 1 '15
- Theory and operation of split-phase magnet. F. Hymans. diags Elec W 68:1000-2 N 18 '16
- Unbroken alternating current for cable telegraphy. G. O. Squier. diags J Fr Inst 180: 311-34 S '15; Same cond. Elec R & W Elec'n 68:586-8 Ap 1 '16
- Wave-shapes obtaining with alternating-current generators working under steady short-circuit conditions. A. E. Clayton. Inst E E J 54:84-103 D 15 '15; Discussion. 54:445-6 Mr 1 '16
- See also* Electric distribution; Electric transmission; Electric waves

Electric discharges thru gases

Arcs in gases between non-vaporizing electrodes. G. M. J. Mackay and C. V. Ferguson. *il diag J Fr Inst* 181:209-16 F '16
Unstable states in arc and glow. W. G. Cady. *diag Sci Am S* 82:189-90 S '16 '16

See also Electric sparks; Ionization; Radio-activity

Electric dishwashers. See Dishwashing machines, Electric

Electric distribution

Balancers on three-wire system. H. M. Phillips. *diags Power* 44:477-9 O 3 '16

Booster arrangement for lighting circuits. K. B. Humphrey. *diag Elec W* 67:772 Ap 1 '16

Considerations in railway power distribution. F. H. Shepard. *Elec Ry J* 47:29-30 Ja 1 '16

Design of high-pressure distribution systems. J. R. Beard. *diags Inst E E J* 54:125-41 Ja 1 '16; Abstract. *Elec W* 67:106-7 Ja 8 '16; Abstract. *Elec R & W Elec'n* 68:57-8 Ja 8 '16; Discussion. *Inst E E J* 54:225-44, 291-5, 379-88, 431-8, 490-6 Ja 15-Ap 1 '16

Distribution-loss factors. T. Croft. *Power* 44:408-10 S 19 '16

Distribution losses. *Elec R & W Elec'n* 67:1151-2 D 25 '15

Distribution of electric energy with particular reference to small properties. A. Hardgrave. *W Soc E E J* 21:409-15 My '16

Distribution system for domestic power service from commercial and engineering standpoints. C. H. Hoge and E. R. Perry. *Am Inst E E Pro* 35:1273-80 Ag '16

Electric service to interconnected Illinois towns. *il map Elec W* 67:1146-53 My 20 '16

Electrical distribution as discussed by N. E. L. A. *Elec Ry J* 47:1032-3 Je 3 '16

Experience and recent developments in central station protective features. N. L. Pollard and J. T. Lawson. *diags Am Inst E E Pro* 35:879-99 Je '16; Same cond. *Power* 44:220-2 Ag 8 '16; Discussion. *Am Inst E E Pro* 35:1395-1409 S '16

Getting together on power distribution. *Elec Ry J* 47:6-7 Ja 1 '16

High tension switching equipment. J. W. Upp. *il plan Gen Elec R* 19:986-94 N '16

How a small-town distribution problem was solved in Tipton, Iowa. *il Elec W* 67:1243-4 My 27 '16

How underground and overhead circuits at Holyoke, Mass., are connected. *il Elec W* 67:267 Ja 29 '16

Method of distributing energy for street-lighting installation. *il diag Elec W* 67:717-19 Mr 25 '16

Method of studying Edison distribution systems. C. E. Bennett. *il diags Elec W* 68:362-5 Ag 19 '16

Power company's problem in the electric supply for large single-phase load. W. C. L. Eglin. *Am Inst E E Pro* 35:1467-70 O '16

Protection of feeder lines. F. Dubsky. *diags Gen Elec R* 19:896-7 O '16

Protection of high-voltage distribution systems by isolating transformers. O. O. Rider. *Am Inst E E Pro* 35:857-9 Je '16

Sectionalizing system with isolating transformers. *il map Elec W* 68:82-3 Ji 8 '16

Service branches from extra-high-tension circuits. D. M. Macleod. *diags Inst E E J* 54:639-43 Je 1 '16; Abstract. *Elec W* 67:1373 Je 10 '16; Discussion. *Inst E E J* 54:643-5 Je 1 '16

Service connections from underground mains. E. B. Meyer. *il Elec W* 68:567-9 S 16 '16

Single-phase power production. E. F. W. Alexanderson and G. H. Hill. *il diags Am Inst E E Pro* 35:1453-65 O '16; Same. *Gen Elec R* 19:1097-1103 D '16; Same cond. *Power* 44:668-70 N 7 '16

Single-phase power service from central stations. R. E. Gilman and C. L. Fortescue. *diags Am Inst E E Pro* 35:1431-51 O '16

Studies in lightning protection of 4000 volt circuits. D. W. Roper. *maps Am Inst E E Pro* 35:817-55 Je '16; Same cond. *Elec W* 68:127-9 Ji 15 '16; Discussion. *Am Inst E E Pro* 35:1395-1409 S '16

Supply of single-phase loads from central stations. P. Torchio. *diags Am Inst E E Pro* 35:1421-9 O '16

System for numbering feeders and cables. *il diags Elec W* 67:388-9 Ap 29 '16

Testing for grounds and insulation resistance. L. H. Henderson. *diags Elec R & W Elec'n* 67:1020-3 D 4 '15

Theory of three-wire distribution. T. Croft. *diags Elec R & W Elec'n* 68:12-14 N 4 '16

Transmission and distribution problems; report of committee of the Ohio electric light association; with discussion. *Elec R & W Elec'n* 69:238-41 Ag 5 '16

Underground distribution system at Calgary, Canada. J. N. Lightbody. *il diags plan Elec W* 67:431-2 F 19 '16

Underground distribution systems. G. J. Newton. *map Am Inst E E Pro* 35:1193-1208 Ag '16

Underground system for an industrial plant. H. D. Austin. *diags Elec W* 66:1253-5 D 4 '15

See also Boosters; Busbars; Electric cables; Electric conductors; Electric currents; Electric driving; Electric fuses; Electric plants; Electric plants (substations); Electric power; Electric transformers; Electric transmission; Electric wire and wiring; Rotary converters; Switchboards; Voltage regulation

Grounding

Convenient point and cap for ground pipes. *diags Elec W* 66:1436 D 25 '15

Earthing electrical systems to water pipes. B. McCollum and O. S. Peters. *diags Am Water Works Assn J* 3:201-19 Mr '16; Same. *Eng & Contr* 44:486-9 D 29 '15; Summary. *Am Gas Light J* 104:130 F 28 '16; Summary. *Munic Eng* 50:46 F '16; Discussion. *Am Water Works Assn J* 3:219-23 Mr '16

Electrification of isolated factories. *Engineer* 121:58 Ja 21 '16

Electrostatic neutral in the 2-phase, 3-wire system and danger under operating conditions. D. H. Moore. *diag Gen Elec R* 19:711-12 Ag '16

Grounding of bathroom fixtures. F. P. McGough. *Elec W* 67:1312 Je 3 '16

Grounding of secondaries. *Elec R & W Elec'n* 68:119, 341, 475, 556 Ja 15, F 19, Mr 11, 25 '16

Grounding of the neutral on alternating-current secondary distribution systems; discussion. *Elec W* 68:389 N 18 '16

Operating conditions with grounded neutrals in Chicago. P. Junkersfeld. *Elec W* 68:131-2 Ji 15 '16

Outside wiring. T. Croft. *diags Elec R & W Elec'n* 68:74-9 Ja 8 '16

Report of the transmission committee; experience with grounded neutral on high-tension transmission lines. P. H. Thomas. *diags maps Am Inst E E Pro* 35:906-29 Je '16; Discussion. 1627-40 D '16

Safe wiring of bathroom fixtures. *Elec R & W Elec'n* 69:858 N 11 '16

Satisfactory ways for grounding electrical systems. *Elec W* 67:1031-2 My 6 '16

Theory of parallel grounded wires and production of high frequencies in transmission lines. E. E. F. Creighton. *diags Am Inst E E Pro* 35:945-88 Je '16; Excerpts. *Elec W* 68:429-30 Ag 26 '16; Discussion. *Am Inst E E Pro* 35:1509-13 O '16

Transformer wiring practice. T. Croft. *diags Elec R & W Elec'n* 68:29-32 Ja 1 '16

Grounds and faults

Convenient method of tracing grounds and faults. H. S. Knowlton. *Elec W* 66:1259 D 4 '15

Easy method of locating grounds or short-circuits on lighting circuits. F. E. Andrews. *diag Elec R & W Elec'n* 69:816 N 4 '16

Fault localizer for polyphase transmission; patent. *diag Elec W* 68:1102 D 2 '16

Isolating and locating arcing grounds. *Elec W* 68:719 O 7 '16

Locating grounds on lead sheathed cables. W. T. Roberts. *diags Power* 44:60 Ji 11 '16

Simple method of locating grounds in armatures or rotors. C. R. Rickard. *diag Elec R & W Elec'n* 68:197 Ja 29 '16

Electric distribution—Grounds and faults—Cont

Valuable results in rapid trouble locating on central-station lines. Elec R & W Elec'n 68: 214 F 5 '16

Electric driving

Alternating current driving in factories; abstracts. G. H. Ayres. Engineer 121:366 Ap 28 '16; Iron Age 98:21 J1 6 '16

Analytical determination of mean effective current. C. O. Mailloux. Elec W 67:837 Ap 8 '16

Analytical determination of mean effective current. W. D. Feaslee. diags Elec W 67:644 Mr 18 '16

Automatic motor-driven typewriter for printing form letters. il Elec W 67:614 Mr 11 '16

Balancing a three-floor drive. W. F. Schnap-horst. diag Elec R & W Elec'n 69:892 N 18 '16

Central-station power effects saving in candy factory. H. C. Riggs. Elec R & W Elec'n 68: 592-3 Ap 1 '16

Characteristics of electric reversing mill. J. E. Jefferies. Elec W 68:951-2 N 11 '16

Conditions under which Oregon company burns wood. il Elec W 68:171-3 J1 22 '16

Cost of operating motors in lime plants and quarries. R. D. Donaldson. Elec W 68:326 Ag 12 '16

Data on motor drive in clothing factories. il Elec W 67:270 Ja 29 '16

Desirable characteristics of mill drives. R. Tschentscher. il Elec R & W Elec'n 69:505-4 S 16 '16

Economic control of the electrical apparatus used in the rubber industry. H. E. Dexter. il diags Gen Elec R 19:630-7 J1 '16

Economy effected by individual motor drive in machine shops. Elec R & W Elec'n 68:551 Mr 25 '16

Economy of electric drive for small planing mill. Elec R & W Elec'n 68:855 My 13 '16

Electric control equipment for machine tools. il Engineer 121:136 F 11 '16

Electric drive and its meaning to the cement industry. J. A. Randolph. il Concrete 9:sup 46-7 N '16

Electric drive at Empire mine. il Eng & Min J 102:861-2 N 11 '16

Electric drive at Massillon, Ohio, mill. G. E. Stoltz. il Iron Tr R 58:93-5 Ja 6 '16

Electric drive for exhausters. diag Am Gas Light J 104:411-13 Je 26 '16

Electric drive for reversing rolling mills. W. Sykes and D. Hall. il diags Am Inst E E Pro 35:739-57 Je '16; Same cond. Iron Tr R 59:420-2 Ag 31 '16; Discussion. Am Inst E E Pro 35:1474-91 O '16

Electric drive for rolling mills. Sci Am 115: 492 D 2 '16

Electric drive in a Texas cement plant. il Elec R & W Elec'n 68:189-91 Ja 29 '16

Electric drive in clay product manufacture. N. G. Meade. il Elec W 67:1470-2 Je 24 '16

Electric drive in Hess mill, Bridgetown, N. J. H. L. James. plan Iron Tr R 59:85 J1 13 '16

Electric drive in the shoe manufacturing industry. N. G. Meade. il Elec W 67:708-9 Mr 25 '16

Electric drive of contractors' machinery. il Elec R & W Elec'n 68:86 Ja 8 '16

Electric motor saves \$200 over gasoline-engine costs. Elec R & W Elec'n 68:289 F 12 '16

Electric operation and automatic electric control for machine tools. L. C. Brooks. il diags Am Soc M E J 38:112-17 F '16; Same. Iron Tr R 58:479-86 Mr 2 '16; Abstract. Iron Age 96:1406-7 D 16 '15; Discussion. Am Soc M E J 38:117-21 F '16; Discussion. Iron Tr R 58: 542-5, 591-2 Mr 9-16 '16

Electric power in a marble quarry. il Engineer 122:308-9 O 6 '16

Electric power in gold-ore reduction. il Elec R & W Elec'n 68:230-2 F 5 '16

Electric power in jobbing foundries. il Elec R & W Elec'n 69:323-5 Ag 19 '16

Electric refrigerator for indoor ice rink. il Elec W 68:617-18 S 23 '16

Electric service for Crane company's new works. il plan Elec W 67:921-3 Ap 22 '16

Electric service in a cotton-duck mill, Wood-berry, Md. il diag Elec W 67:252-4 Ja 29 '16

Electric service in two large New England markets. il Elec W 67:48-9 Ja 1 '16

Electrical equipment of the Alabama marble company. R. T. Brooke. il Gen Elec R 19:319-22 Ap '16

Electrical equipment of the Inland steel company's new mill, Indiana Harbor, to include a 15,000-horsepower reversing motor. il Elec R & W Elec'n 68:170-1 Ja 22 '16

Electrical features of Youth's companion plant. il Elec R & W Elec'n 68:632-3 Ap 8 '16

Electrical operation of twenty artificial ice factories in Chicago. il Elec W 67:1155 My 20 '16

Electrically driven charging cars for coke-ovens; abstract. K. Dobbelsstein. il diags Am Soc M E J 38:349-50 Ap '16

Electrically driven machinery in sewer construction at Salt Lake City, Utah. B. W. Mendenhall. il Eng & Contr 45:16-18 Ja 5 '16; Same cond. Elec W 66:1319-21 D 11 '15; Same cond. Munic Eng 50:91-3 Mr '16

Electrically driven paper mill. T. Wilson. il diag plan Power 43:756-62 My 30 '16

Electrically driven reversing mill. Iron Age 98:74-5 J1 13 '16

Electrically driven reversing rolling mills. W. Sykes. Iron Age 98:822 O 12 '16

Electrically driven tube mill of the Timken roller bearing co., Canton, O. il Iron Age 97: 991-4 Ap 27 '16

Electrically equipped bakery at Boston producing 50,000 loaves of bread daily. il Elec W 67:481 F 26 '16

Electrically operated freezers for making ice cream in quantities. il Elec W 67:1061-2 My 6 '16

Electrically operated marble quarry. F. C. Perkins. il Sci Am S 82:88 Ag 5 '16

Electricity at summer amusement resorts. il Elec R & W Elec'n 68:1067-9 Je 10 '16

Electricity effects economy in a small bakery; Old Home bakery, Auburn, N. Y. il Elec R & W Elec'n 68:239-40 F 5 '16

Electricity in a coal-refining plant. F. D. Burr. il Elec R & W Elec'n 68:366-8 F 26 '16

Electricity in a steel rolling mill. W. L. Berry. il Elec R & W Elec'n 69:838-41 N 11 '16

Electricity in automobile manufacturing. il Elec R & W Elec'n 68:324-7 F 19 '16

Electricity in boiler and radiator manufacture. il Elec R & W Elec'n 68:1145-8 Je 24 '16

Electricity in brick manufacturing plants. il Elec R & W Elec'n 68:60-4 Ja 8 '16

Electricity in by-product coke manufacture. Elec R & W Elec'n 68:583-5 Ap 1 '16

Electricity in canning factories. il Elec R & W Elec'n 69:278-80 Ag 12 '16

Electricity in cement manufacturing plants. A. C. Hewitt. il Elec R & W Elec'n 69:192-8 J1 29 '16

Electricity in cotton-goods manufacture. il Elec R & W Elec'n 68:842-5 My 13 '16

Electricity in cotton-seed and peanut mills. il Elec R & W Elec'n 68:796-800 My 6 '16

Electricity in horseshoe-nail manufacture. T. R. Hay. il Elec R & W Elec'n 69:460-2 S 9 '16

Electricity in ice harvesting. il Elec R & W Elec'n 67:1005-7 D 4 '15

Electricity in leather manufacturing. il Elec R & W Elec'n 68:199-502 Mr 18 '16

Electricity in marble-quarrying operations. il Elec R & W Elec'n 69:363-6 Ag 26 '16

Electricity in paint manufacturing. il Elec R & W Elec'n 68:102-4 Ja 15 '16

Electricity in pump manufacture. il Elec R & W Elec'n 67:1057-60 D 11 '15

Electricity in raw-water ice-making. il Elec R & W Elec'n 69:755-8 O 28 '16

Electricity in raw-water ice-making. C. J. Carlsen. il diag Elec R & W Elec'n 68:908-14 My 20 '16

Electricity in rural communities. il Elec R & W Elec'n 68:410-14 Mr 4 '16

Electricity in shoe manufacturing. il Elec R & W Elec'n 68:456-8 Mr 11 '16

Electricity in small industries. il Elec R & W Elec'n 68:331-3 F 19 '16

Electricity in soap manufacture. il Elec R & W Elec'n 67:1139-42 D 25 '15

Electricity in the manufacture of engines. il Elec R & W Elec'n 69:11-16 J1 1 '16

Electric driving—Continued

Electricity in the manufacture of explosives. il Elec R & W Elec'n 69:65-6 J1 8 '16

Electricity in the manufacture of gears. il Elec R & W Elec'n 68:146-50, 752-4 Ja 22, Ap 29 '16

Electricity in the manufacture of paint and varnish. F. D. Burr. il Elec R & W Elec'n 68:550-1 Mr 25 '16

Electricity in the manufacture of pianos. il Elec R & W Elec'n 68:1108-10 Je 17 '16

Electricity in the manufacture of silk. il Elec R & W Elec'n 68:670-2 Ap 15 '16

Electricity in the manufacture of the pocket knife. F. A. Buttrick. il Gen Elec R 19:81-5 Ja '16

Electricity in typewriter manufacture. il Elec R & W Elec'n 69:158-9 J1 22 '16

Electricity increases doll factory output. il Elec W 68:1107-8 D 2 '16

Electricity on the New York state barge canal. E. W. Pilgrim. il diags map Gen Elec R 19:24-42 Ja '16

Electrification of isolated factories. il Engineer 121:191-2; 122:3-4, 52-3 Mr 3, J1 7, 21 '16

Electrification of Portland cement plants. il Elec R & W Elec'n 69:628-31 O 7 '16

Flexible-plant operation in a New York bindery. il Elec W 67:596-7 Mr 11 '16

Four speed induction motor drive produces economies in manufacture of lead cable. il Elec W 68:525-6 S 9 '16

Hamilton electric incline railway. il Elec R & W Elec'n 67:1160-2 D 25 '15; Same cond. Elec Ry J 46:115-16 J1 17 '15; Same cond. Eng N 74:49-51 J1 8 '15; Same cond. Ry R 57:213-14 Ag 14 '15

Heavy wiring in a soap factory; B. J. Johnson soap co., Milwaukee. il Elec R & W Elec'n 69:202-4 J1 29 '16

Hire and maintenance of continuous-current motors. H: Joseph. Inst E E J 54:564-70; Discussion. 570-9 My 1 '16

How one cracker bakery turned to electric drive. Elec R & W Elec'n 68:677-8 Ap 15 '16

How the New York barge canal will be operated. W: H. Yates. il diag plan map Eng N 75:97-104, 158-62 Ja 20-27 '16

How the question of wood refuse was solved in a Louisville plant. Elec R & W Elec'n 68:194-5 Ja 29 '16

Installation of driving equipment for fans. H. Bard. diags Metal Work 86:3-4 J1 7 '16

Installing concrete sewer lines with electric driven machinery. L. R. W. Allison. il Concrete 9:47-8 Ag '16

Large electric hoist. W. Sykes. il diags Am Inst E E Pro 34:1819-27 Ag '15; Discussion. 35:414-19 Mr '16

Layout and tests of an Alabama cotton mill. G: Wrigley. il Elec W 68:803-7 O 21 '16

Magnetic control for steel mills. G. E. Stack; H. I. Smith. il diags Gen Elec R 19:745-54, 834-41 S-O '16

Model chair factory uses central-station service. Elec R & W Elec'n 69:25-6 J1 1 '16

Motor drive effects economies in shoe factory. il Elec R & W Elec'n 69:766-7 O 28 '16

Motor drive for operating steel rolling mill. W: Knight. Elec W 68:662-5 S 30 '16

Motor drive for steel mills. F. B. Crosby. il diags Gen Elec R 19:282-96 Ap '16

Motor drive in the manufacture of macaroni. F. D. Burr. il Elec R & W Elec'n 68:1155-6 Je 24 '16

Motor drive increasing in stone dressing. il Elec R & W Elec'n 69:288 Ag 12 '16

Motor drive of the small sawmill. A. A. Laughton. il Elec W 67:268-9 Ja 29 '16

Motor-driven pasteurizer. il Elec W 67:1318 Je 3 '16; Same. Elec R & W Elec'n 68:1047 Je 3 '16

Motor drives in a wood heel factory. T: D. Bond. il Elec W 68:428 Ag 26 '16

Motor equipments for the recovery of petroleum. W. G. Taylor. il diags Am Inst E E Pro 35:759-72 Je '16; Same. Elec R & W Elec'n 69:232-7 Ag 5 '16; Discussion. Am Inst E E Pro 35:1492-3 O '16

N. E. L. A. report of power sales bureau. Elec W 67:1229-30 My 27 '16

New bar mill of notable flexibility at Union rolling mill co.'s plant, Cleveland. il Iron Age 97:1060-3 My 4 '16

New form of end lift used on Chelsea north draw. R. D. Gardner. il Eng N 75:1216-17 Je 29 '16

Practical advantages of motor drive in the woodworking shop. il Elec W 67:939 Ap 22 '16

Problems in d. c. motor control. H. F. Stratton. diags Iron Tr R 59:991-7 N 16 '16; Same cond. Iron Age 9:1166-70 N 23 '16

Schemes that facilitate operation of electric excavators. il Elec W 68:132-3 J1 15 '16

Securing power business from large factories. Elec R & W Elec'n 68:1156-7 Je 24 '16

Securing refrigeration motor load for the summer months. diag Elec W 67:551 Mr 4 '16

Selection of electrical apparatus for cranes. R. H. McLain and J. A. Jackson. il diags Gen Elec R 19:506-17 Je '16

Selling power to a structural iron plant. Elec R & W Elec'n 68:288-9 F 12 '16

Serving an 8500-hp. steel rolling-mill load. il diags Elec W 67:640-3 Mr 18 '16

Simple direct motor drive for two machines. W: T. Estlick. Elec R & W Elec'n 67:1066 D 11 '15

Steel mill and the central station. K. A. Pauly. il Gen Elec R 19:497-500 Je '16

Tests on various electric motor-driven equipment used in the preparation of anthracite coal. H. M. Warren, A. S. Biesecker and E. J. Powell. Am Inst Min E Bul 10:181-93 F '16; Discussion. 113:901-2 My '16

Three remarkable emergency service connections. C. H. Shaw. il Elec R & W Elec'n 68:1031-2 Je 3 '16

Traveling sewage-distributor changes, Springfield, Mo. A. Potter. il Eng N 75:1028-9 Je 1 '16

Use of electric power for public works. il diags Elec R & W Elec'n 68:1017-23 Je 3 '16

Use of electric power in dairy plants. il Elec R & W Elec'n 69:881-2 N 18 '16

Use of motors in large tunnel construction work. il Elec W 67:1358-9 Je 10 '16

When poor load-factor brings good business; electrical operation of grain elevators in Kansas City. il Elec W 67:158-60 Ja 15 '16

Why a wood-working and wood-preserving plant finds central-station drive profitable. il Elec W 67:209-10 Ja 22 '16

Why motor drive is best. W: H. Easton. il Eng M 51:687-96 Ag '16

See also Electric distribution; Electric equipment; Electric motors; Electric plants; Electric power; Electric transmission

Electric elevators. See Elevators, Electric**Electric engineering**

A. I. E. E. and the technical committees. D: B. Rushmore. il diags Am Inst E E Pro 35:113-20 F '16

Development of applied science in 1915. A. E. Kennelly. Elec W 67:18-19 Ja 1 '16

Developments in the electrical industry during 1915. J: Liston. il diag Gen Elec R 19:4-23 Ja '16

Electrical engineering in 1915. Engineer 121: 8-9, 32-3 Ja 7-14 '16

Inaugural address at meeting of Institution of electrical engineers, Nov. 18, 1915. C: P. Sparks. Inst E E J 54:1-11 D 1 '15; Same. Engineer 120:503-4, 547-8 N 26, D 10 '15; Excerpts (Reasons for electrical progress). Elec R & W Elec'n 67:1110-11 D 18 '15

N. E. L. A. 39th annual convention; abstracts of papers and reports. Elec R & W Elec'n 68:977-9 My 27 '16

N. E. L. A. 39th annual convention; technical sessions. Elec W 67:1221-6 My 27 '16

Retrospect of the year 1915; electricity. Sci Am 114:6-7 Ja 1 '16

Scottish local section; chairman's address. D. A. Starr. Inst E E J 54:46-9 D 1 '15

See also Armatures; Commutation (electricity); Dynamos; Electric apparatus and appliances; Electric contractors; Electric distribution; Electric driving; Electric heating; Electric lighting; Electric machinery; Electric measurement; Electric meters; Electric motors; Electric plants; Electric railroads; Electric transmission; Electric wire and wiring; Electricity; Electricity in mining; Electricity in war; Electricity on ships; Electricity on the farm; Hydroelectric plants; Railroads—Electrification; Telegraph; Telephone; Wireless telegraph; also Association of iron and steel electrical engineers

Electric engineering—Continued**Laws and regulations**

- Analysis of changes in 1915 electrical code. Elec R & W Elec'n 68:335-40 F 19 '16
 Chicago electrical rules revised. Elec R & W Elec'n 68:512 Mr 18 '16
 Experience with a code rule to prevent the overloading of circuits—Chicago's unique requirement based on floor area. V. H. Tousey. Elec W 68:378 Ag 19 '16
 West Virginia requires 660-watt sockets. Elec R & W Elec'n 69:418 S 2 '16

See also Electric inspection; Electric railroads—Law; Electric wire and wiring; National electrical code

Safety devices and measures

- Hazards of working on series arc lamps. H. B. Sweeny. diag Elec W 67:770-1 Ap 1 '16
 Hold-off system for protecting station and line men. Elec W 68:480 S 2 '16
 Lineman's shoe made to withstand 20,000 volts. il Elec W 67:392 F 12 '16
 Prevention of accidents by electrical workers. Elec R & W Elec'n 68:644 Ap 8 '16
 Safety first switchboard devices. B. P. Rucker. il diags Gen Elec R 19:884-91 O '16
 Safety measures for cable splicers. R. A. Paine, jr. Elec W 68:180 JI 22 '16
 Timely hints to electricians. Elec R & W Elec'n 68:765 Ap 29 '16

See also Electric protective apparatus; National electrical code

Study and teaching

- Artificial transmission line with adjustable line constants. C. E. Magnusson and S. R. Burbank. bibliog 12 pls diags Am Inst E E Pro 35:1245-57 Ag '16
 Suggestions for electrical research in engineering colleges. V. Karapetoff. Am Inst E E Pro 35:591-606 My '16; Discussion. 35:1514-26 O '16

Tables, calculations, etc.

- Analytical determination of mean effective current. C. O. Mailloux. Elec W 67:837 Ap 8 '16
 Analytical determination of mean effective current. W. D. Peaslee. Elec W 67:644 Mr 18 '16
 Finding pole and wire loads. diag Elec Ry J 48:457-8 S 9 '16
 Formulas for lines with uniform leak loads. A. E. Kennedy. diags Elec R & W Elec'n 68:1149-51 Je 24 '16

See also Circular mil

Electric engineers

- Electrical engineer in the nation's service. F. J. Sprague. Elec W 67:10-11 Ja 1 '16
 Opportunities for young electrical engineers in research and testing. P. S. Millar. Elec W 67:1416-17 Je 17 '16
 Opportunities for young electrical engineers in the central-station field. J. F. Gilchrist. Elec W 67:421-2 F 19 '16
 Opportunities for young electrical engineers in the electric railway field. C. E. Harte. Elec W 67:878-9 Ap 15 '16
 Opportunities for young electrical engineers in the telephone field. M. C. Rorty. Elec W 67:654-6 Mr 18 '16
 State directors named for industrial preparedness committee. Elec W 67:920 Ap 22 '16; Same. Elec R & W Elec'n 68:708 Ap 22 '16; Same. Am Inst E E Pro 35:sup110-12 My '16
 What preparedness means in the industry. F. J. Sprague. il Elec W 67:1036-8 My 6 '16
 Young electrical engineer's opportunities. Elec W 67:141 Ja 15 '16; Discussion. 67:422-3, 656, 879, 1417 F 19 Mr 18, Ap 15, Je 17 '16

Electric equipment

- Electrical equipment of new factory of Holtzer-Cabot electric company, Roxbury, Mass. il Elec R & W Elec'n 67:1037 D 4 '15
 Electrical installation in a large modern club house: South Shore country club, Chicago. il Elec R & W Elec'n 68:594-8 Ap 1 '16
 Power equipment for alternating-current signalling at interlocking plants. H. M. Jacobs. il diag Gen Elec R 19:75-9 Ja '16

- Wiring of a railroad passenger service terminal. il Elec R & W Elec'n 68:466-70 Mr 11 '16

See also Automobiles—Electric equipment; Electric apparatus and appliances; Electric distribution; Electric driving; Electric lighting; Electric plants; Electric power; Electric railroads—Equipment; Electric transmission; Electricity in mining; Electricity in the home; Electricity on ships; Electricity on the farm; Factories—Electric equipment; Garages, Electric; Hospitals—Electric equipment; Hotels—Electric equipment; Railroads—Electric equipment

Electric fans. *See* Fans, Electric

Electric fittings

- Electrolet conduit fittings. il Elec R & W Elec'n 68:39 Ja 1 '16
 Fittings for use in installations of concentric wire. il Elec R & W Elec'n 68:518-19 Mr 18 '16
 Fixture attachment. diags Elec W 67:728 Mr 25 '16
 Hubbell three-wire plugs and receptacles. il Elec R & W Elec'n 68:301 F 12 '16
 Key and keyless sockets. il Elec W 67:225-6 Ja 22 '16
 New type of service entrance cap. il Elec R & W Elec'n 68:209-10 Ja 29 '16
 Polarized attachment plug and receptacles. il Elec W 67:170 Ja 15 '16
 Protective system for service connections. il Elec W 67:1431-2 Je 17 '16
 Short-circuiting plug for grounded-neutral cutouts. il Elec R & W Elec'n 69:257 Ag 5 '16; Elec W 68:290 Ag 5 '16
 Shurlock socket for preventing theft of lamps. il Elec W 67:503 F 26 '16
 Standardization of threads of sockets and lamp bases. Elec W 67:260 Ja 29 '16; Mach 22:510 F 1 '16
 Wall bracket insulators for house services. il Elec W 68:1067 N 25 '16; Elec R & W Elec'n 69:820-1 N 4 '16
 Wiremold and fittings. il diags Elec R & W Elec'n 69:436-7 S 2 '16

Electric flashlights

- Cane and umbrella with flashlamp attachment. il Elec W 66:1388 D 18 '15
 Fire fly electric battery lamp. il Elec R & W Elec'n 67:1082 D 11 '15

See also Electric lamps, Miniature

Electric flatirons. *See* Electric irons

Electric furnaces

- Aluminous abrasives from waste garnet; patented by J. Davenport. diag Met & Chem Eng 15:359-60 S 15 '16
 Annual capacity of Heroult electric steel furnaces in all countries. Iron Age 97:107 Ja 6 '16
 Bethlehem adopts electric furnace. C. J. Stark. il Iron Tr R 58:1114-16 My 18 '16; Same. Iron Age 97:1194-5 My 18 '16
 Coke as a reducing agent in the electric smelting furnace. R. C. Gosrow. Met & Chem Eng 14:691-4 Je 15 '16
 Cost of electric furnace steel; experience with the Snyder furnace. F. T. Snyder. il diag Iron Age 96:926-8 O 21 '15; Same cond. Iron Tr R 57:1091-2 D 2 '15
 Development of practical substitutes for platinum and its alloys, with special reference to alloys of tungsten and molybdenum. F. A. Fahrenwald. il diag Am Inst Min E Bul 109:105-7, 128-32 Ja '16
 Electric alloy steels made on tonnage basis. il plan Iron Age 98:571-4 S 14 '16
 Electric arc furnace for laboratory use. O. P. Watts. il Met & Chem Eng 14:681-3 Je 15 '16
 Electric furnace as a central-station load. T. R. Hay. Elec R & W Elec'n 68:27-8 Ja 1 '16
 Electric furnace as a soaking pit in the steel mill. T. F. Baily. Iron Age 97:311 F 3 '16
 Electric furnace construction and operation. J. H. Gray. diags Foundry 44:241-5, 274-6 Je-JI '16
 Electric furnace control. J. A. Seede. il Gen Elec R 19:501-5 Je '16
 Electric furnace employed in Crucible steel casting co.'s foundry. il Iron Tr R 59:1002-3 N 16 '16

Electric furnaces—Continued

- Electric furnace for gas reactions patented by Alois Helfenstein. *diag Met & Chem Eng* 14:282 Mr 1 '16
- Electric furnace for making graphite; patent by J. W. Brown. *diag Met & Chem Eng* 14:710 Je 15 '16
- Electric furnace for producing phosphoric acid; patent of I. Hechenbleikner. *diag Met & Chem Eng* 11:42 My 1 '16
- Electric furnace for tempering tools. *il Ry Mech Eng* 30:123-4 Ag '16
- Electric furnace in Norway under war conditions. *Eng & Min J* 102:821 N 4 '16
- Electric furnace in steel manufacture. J. A. Mathews. *Iron Age* 97:1327-30 Je 1 '16; Same. *Iron Tr R* 58:1264-7 Je 8 '16; Discussion. *Iron Age* 97:1330-2 Je 1 '16; *Iron Tr R* 58:1267 Je 8 '16
- Electric furnace in the foundry. E. B. Clark. *Iron Age* 98:615-16 S 14 '16
- Electric furnace installations in foundries; list of units of various types operated in the casting plants of the United States and Canada. *Foundry* 44:203-4 My '16
- Electric furnace papers presented at American foundrymen's assn. *Iron Age* 98:645-6 S 21 '16
- Electric furnace practice in making steel castings. T. S. Quinn. *Iron Age* 98:614-15 S 14 '16
- Electric furnace products. F. J. Tone. *Met & Chem Eng* 14:509-11 My 1 '16; Same (Ferrolloys and Niagara water power). *Iron Age* 97:1124-5 My 1 '16
- Electric furnace steel in Canada. J. E. Davey. *Met & Chem Eng* 14:54 Ja 1 '16
- Electric furnace steels and alloy steels; discussion. *J Ind & Eng Chem* 8:947-50 O '16; Abstracts. *Met & Chem Eng* 15:448 O 15 '16; *Iron Tr R* 59:700-1 O 5 '16; *Iron Age* 98:772-3 O 5 '16
- Electric furnaces for melting brass. W. H. Parry. *Metal Ind n s* 14:152 Ap '16
- Electric furnaces for producing refined-steel products. *il Elec W* 67:333-4 F 5 '16
- Electric heat-treating furnace; patent by T. F. Bailey and F. T. Cope. *diag Met & Chem Eng* 14:710-11 Je 15 '16; *Iron Age* 98:75 Jl 13 '16
- Electric nitrogen fixation furnace; patent of James S. Island. *diag Met & Chem Eng* 15:48 Jl 1 '16
- Electric pig-iron furnaces; material and heat balance sheets compared with those of German blast furnaces. B. Naumann. *Iron Age* 97:834 Ap 6 '16
- Electric steel at Sheffield. *Iron Age* 97:1379 Je 8 '16
- Electric steel; how the temperature is automatically regulated in an electric steel furnace. W. H. Easton. *il Sci Am* 115:500 D 2 '16
- Electric steel industry's present status. *Iron Age* 97:94-7 Ja 6 '16
- Electric steel making. *Elec W* 67:1251-2 My 27 '16
- Electric zinc furnace, patented by Alois Helfenstein. *diag Met & Chem Eng* 14:341-2 Mr 15 '16
- Electrically heated bomb furnace. D. F. Calhane and H. A. Lavenne. *il diags Met & Chem Eng* 14:140-3 F 1 '16
- Electrically-heated vacuum furnace for research work on vacuum irons. *il Sci Am* 115:157 Ag 12 '16
- Energy consumption and operating schedule for a one-ton furnace connected to central station lines. A. L. Scott. *Elec W* 67:943 Ap 22 '16
- Experimental electric furnace for high temperatures. *Met & Chem Eng* 14:166-7 F 1 '16
- Extraction of gold and silver from matte by lead; experimental electric furnace. W. Mostowitsch. *diag Met & Chem Eng* 14:704 Je 15 '16
- Faults of the small electro-arc furnace for melting and refining steel. W. M. McKnight. *Met & Chem Eng* 14:478-9 My 1 '16; Same. *Iron Age* 97:1008 Ap 27 '16
- Ferromanganese smelting in electric furnaces. H. O. Marcy. *Eng & Min J* 102:627 O 7 '16
- Grönwall-Dixon electric furnace. *il diags Iron Age* 98:517-20 S 7 '16

- Grönwall-Dixon electric furnace. J. A. Crowley. *diags Iron Tr R* 59:571-3 S 21 '16
- Ideal electric furnace for the foundry. F. J. Ryan, E. E. McKee and W. D. Walker. *Iron Age* 98:616-17 S 14 '16
- Industrial electric heating association 2d convention, Nov. 26-27, 1916. *il Elec W* 66:1278-9 D 4 '15
- Laboratory electric arc furnace. O. P. Watts. *il Elec W* 67:1481-2 Je 24 '16
- Laboratory muffle furnace. R. E. Clizbe. *diags Power* 44:123-4 Jl 25 '16
- Melting aluminum chips. H. W. Gillett and G. M. James. *U S Bur Mines Bul* 108:65-72 '16
- Open hearth versus the electric furnace in the manufacture of commercial steels. S. Cornell. *Met & Chem Eng* 13:630-1 S 15 '15; Same. *Sci Am S* 81:107 F 12 '16
- Operating characteristics of small electric furnace. *il Elec W* 67:262 Ja 29 '16
- Operating data on an important electric furnace installation. W. J. Kyle. *il diags Elec R & W Elec'n* 68:374-6 F 26 '16
- Practical design for a tungsten or molybdenum-wound furnace. F. A. Fahrenwald. *il diag J Ind & Eng Chem* 8:436 My '16
- Production of ferromanganese, patented by H. Schagrin. *diags Met & Chem Eng* 15:265 S 1 '16; *Iron Age* 98:769 O 5 '16
- Production of ferrosilicon in the electric furnace, patented by Herbert C. Harrison. *diag Met & Chem Eng* 14:339 Mr 15 '16
- Recent chemical and metallurgical patents. *diags Met & Chem Eng* 14:100-1 Ja 15 '16
- Remediable or irremediable inferiority of electric steels. H. M. Howe. *Iron Age* 98:773-4 O 5 '16
- Rennerfelt electric arc furnace. C. H. Vom Baur. *diags Iron Tr R* 58:977-8 My 4 '16; Same. *Foundry* 44:204-5 My '16; Same. *Iron Age* 97:1052-3 My 4 '16; Excerpt. *Met & Chem Eng* 14:479 My 1 '16
- Rennerfelt electric furnace. A. Stansfield. *il diags Sci Am S* 81:332 My 20 '16
- Service requirements of the electric arc furnace. H. Hollis. *il Elec W* 67:766-8 Ap 1 '16
- Single-electrode electric furnaces for making and refining steel. *il Elec W* 67:670 Mr 13 '16
- Snyder electric furnace installations. *Foundry* 44:37 Ja '16
- See also Electric heating; Electrometallurgy

Electric fuses

- Bureau of standards reports in the case concerning fire and accident hazard of the economy refillable fuse. *Elec R & W Elec'n* 67:1163-4 D 25 '15
- Cause of fuses blowing. *Power* 44:302 Ag 29 '16
- Design and operation of horn-gap fuses. E. A. Dillard. *il diags Elec W* 66:1305-7 D 11 '15
- Design and operation of horn-gap fuses. E. P. Peck. *Elec W* 66:1434 D 25 '15
- Design of protective power fuses. E. A. Dillard. *Elec W* 67:156 Ja 15 '16
- Fuse-changing stick used by Georgia railway & power company. *il diag Elec W* 67:825 Ap 8 '16
- Labeling fuses conduces to safety. E. D. Ransom. *il Elec Ry J* 48:897-8 O 21 '16; Abstract. *Elec W* 68:910 N 4 '16
- Low-tension fuses; abstract. J. A. Crabtree. *Elec W* 67:1003 Ap 29 '16
- Oil-immersed fuse. *il Coal Age* 8:761 N 6 '15
- Report of the Bureau of standards in the case of Economy fuse and mfg. co. vs. Underwriters' laboratories, inc., concerning the fire and accident hazard of the Economy refillable fuse; abstract. *J Fr Inst* 182:681-3 N '16

Testing

- Combination fuse and lamp test board. E. D. Ransom. *diag Elec Ry J* 48:455 S 9 '16
- Electric garages.** See Garages, Electric
- Electric generators.** See Dynamos
- Electric haulage.** See Telpherage
- Electric heaters**
- Electric air heater. *il Elec W* 66:1276 D 4 '15
- Electric air heater and blower. *il Elec W* 66:1274 D 4 '15

Electric heaters—Continued

- Electric air heater; design, diag Elec R & W Elec'n 69:939 N 25 '16
 Electric air heaters, il Elec W 67:169 Ja 15 '16
 Electric air heating device, il Metal Ind n s 13:517 D '15
 Electric foot warmer for traffic policemen, il Elec R & W Elec'n 68:520-1 Mr 18 '16; Munic J 40:404 Mr 23 '16
 Electric glue heater and warmer, il Elec W 66:1277 D 4 '15
 Electric heating of a Canadian residence, il Elec R & W Elec'n 68:541-4 Mr 25 '16
 Electric heating stove, il Elec W 67:281-2 Ja 29 '16
 Forced-ventilation electric heater, il Elec Ry J 48:899-900 O 21 '16
 New features in electric car heaters, il Elec Ry J 47:574 Mr 18 '16
 Recent heater installation on New York subway cars, il Elec Ry J 47:180 Ja 22 '16
See also Car heating; Electric water heaters

Electric heating

- Basis for present and future growth in electric heating, W. S. Hadaway, Elec W 67:29-30 Ja 1 '16
 Distribution system for domestic power service from commercial and engineering standpoints, C. H. Hoge and E. R. Perry, Am Inst E E Pro 35:1273-80 Ag '16
 Electric domestic heating, diags Elec W 67:217-18 Ja 22 '16
 Electric heating for a large high school, Burley, Idaho, il plans Heat & Ven 13:13-17 Ja '16
 Electric heating in the West, il plans Metal Work 85:193-5 F 4 '16
 Electric heating; its present position and future development, G. Wilkinson, diags Inst E E J 54:209-15; Discussion, 54:215-22, 655-8 Ja 15, Je 1 '16
 Electric heating of a Canadian residence, il Elec R & W Elec'n 68:541-4 Mr 25 '16
 Electric heating used to rush completion of concrete work, il diags Elec W 67:152-3 Ja 15 '16
 Electrically heated high school at Burley, Idaho, F. E. Ware, il plan Elec W 67:204-5 Ja 22 '16; Abstract, Eng M 50:948 Mr '16
 Electrically heated high school, Burley, Idaho, Elec R & W Elec'n 68:98 Ja 15 '16
 Experience with electric heating of dwellings, J. D. Ross, il diag Elec W 68:414-17 Ag 26 '16
 Heating and ventilating a school by electricity, Rupert, Idaho, il plans Metal Work 85:501-4 Ap 14 '16
 Heating and ventilation laboratory; apparatus for study of electric heating, diag Elec W 67:554 Mr 4 '16
See also Boilers—Electric heating; Electric furnaces; Electric heaters; Electric water heaters

Electric heating, Industrial

- Applications of electricity in competition with gas; electrically heated enameling ovens, Gas Age 38:535-6 N 15 '16
 Electric heating economical for shoe factories, il Elec R & W Elec'n 68:109 Ja 15 '16
 Electric heating in its application to shoe-making machinery, il Elec W 67:278-9 Ja 29 '16
 Electric heating in shoe factories; abstracts, D. M. DeBard, Elec R & W Elec'n 69:878 N 18 '16; Elec W 68:914-15 N 4 '16
 Electric heating in the industries, il Sci Am 115:494+ D 2 '16
 Electrically heated machines in shoe factory more economical than gas, Elec R & W Elec'n 69:892 N 18 '16
 Industrial electric heating, C. F. Hirshfeld, Sibley J 30:387-9 S '16
 Industrial electric heating association convention, Detroit, Mich., Nov. 26-27, Elec R & W Elec'n 67:1063-4 D 11 '15
 Industrial electric heating seen in its ascendancy, Elec W 68:615-17 S 23 '16
 Progress in industrial electric heating; abstracts, H. Fulwider, Elec W 67:919 Ap 22 '16; Elec R & W Elec'n 68:760 Ap 29 '16
See also Electric furnaces; Electric irons; Electric ovens

Electric hoisting. *See* Hoisting machinery; Mine hoisting

Electric hoists. *See* Hoisting machinery

Electric ignition

- Ignition of explosive gas mixtures by electric sparks; with discussion, J. D. Morgan, diags Inst E E J 54:196-208 Ja 15 '16
 Simple method for electrically lighting gasoline blow-torch, il diags Elec W 67:660 Mr 18 '16

See also Automobile engines—Ignition devices; Gas and oil engines—Ignition

Electric incubators. *See* Incubators, Electric

Electric industries

- Associated manufacturers of electrical supplies 1st annual meeting, Elec R & W Elec'n 68:537-9 Mr 25 '16
 Business hints for the electrical dealer, G. D. Crain, jr, Elec R & W Elec'n 69:382-3 Ag 26 '15
 Commercial preparedness for war aftermath, A. A. Gray and M. G. Lloyd, Elec R & W Elec'n 68:1112-14 Je 17 '16
 Co-operation between electrical contractors and jobbers; principles adopted by the Oregon association of electrical contractors and dealers, Elec R & W Elec'n 69:162-3 Jl 22 '16
 Dealer and manufacturer must co-operate, G. D. Crain, jr, Elec R & W Elec'n 68:686-7 Ap 15 '16
 Electrical engineering in 1915, Engineer 121:8-9, 32-3 Ja 7-14 '16
 European electrical manufacturing conditions and our trade, M. Coster, Elec W 67:12-13 Ja 1 '16
 Holiday business for the electrical industry, il Elec R & W Elec'n 69:793-6 N 4 '16
 Jobber, the dealer and contractor the ideal agencies to develop household-appliance sales, E. W. Rockafellow, Elec W 67:360-1 F 12 '16
 Message to Jovians, H. L. Doherty, Elec R & W Elec'n 69:751 O 28 '16
 More business for the electrical exporter, W. S. Kies, il Elec W 68:64-5 Jl 8 '16
 Power of co-operation among manufacturers, R. K. Sheppard, Elec W 68:992-4 N 18 '16
 Should electric merchandising be restricted? Elec R & W Elec'n 69:106-8 Jl 15 '16
 Widening the activities of the supply jobber, T. M. Debevoise, Elec W 67:474-5 F 26 '16
See also Electric apparatus; Electric contractors; Electric engineering; Electric plants; Electric plants (central stations); Electric power; Electric service companies; Electric shops; Electric prosperity week; Electricity in mining; Electricity supply; Electrochemistry; Electrometallurgy; Electrolating; Factories—Electric equipment; also Commonwealth Edison co.

Australasia

- Electrical work in Australasia, C. G. Calman, Inst E E J 54:504-7 Ap 1 '16

Belgium

- Great industries in Belgium before and during the war, H. Hubert, Engineer 121:156 F 18 '16

Canada

- Canadian electrical industries during a war year, A. Sullivan, Elec W 67:33-4 Ja 1 '16

China

- Electric generating stations in China; with discussion, C. A. M. Smith, Inst E E J 54:162-8 Ja 1 '16

France

- Electric power machinery in France after the war, L. W. Schmidt, Power 44:719-20 N 21 '16

Germany

- German electrical industry, Elec R & W Elec'n 68:728 Ap 22 '16
 German electricity supply and rates, Elec W 67:1174 My 20 '16
 German plan for bulk energy supply; abstract, Dr. Klingenberg, Elec W 68:380 Ag 19 '16

Electric industries—Continued

Great Britain

- British electrical imports. Elec W 68:441 Ag 26 '16
 Bulk supply of electricity in England proposed. Elec W 67:1048 My 6 '16
 Central-station conditions in England in wartime. Elec R & W Elec'n 68:359-60 F 26 '16
 Electric power distribution in England; abstract. C. H. Merz. Elec W 68:869 O 28 '16
 Electrical affairs in Great Britain in 1915. A. H. Bridge. Elec R & W Elec'n 68:14-15 Ja 1 '16
 Electricity supply of Great Britain. E. T. Williams. Inst E E J 54:581-7; Discussion. 588-607 Je 1 '16
 Inaugural address at meeting of Institution of electrical engineers. Nov. 18, 1915. C. P. Sparks. Inst E E J 54:1-11 D 1 '15; Same. Engineer 120:503-4, 547-8 N 26, D 10 '15; Excerpts (Reasons for electrical progress). Elec R & W Elec'n 67:1110-11 D 18 '15

India

- Development of electric power for industrial purposes in India. H. R. Speyer. Inst E E J 53:597-604 Ap 15 '15; Discussion. 54:661-3 Je 1 '16

Italy

- Italian electrical industry; abstract. G. Semenza. Elec W 67:667 Mr 18 '16

Japan

- Electricity supply in Japan. Elec W 68:236 Jl 29 '16

Russia

- Russian electrical market; abstract. P. Gurevitch. Elec W 67:892 Ap 15 '16

Spain

- Export opportunities in a European city. H. S. Foley. il Elec W 68:1047-8 N 25 '16

Switzerland

- Electric power supply in Switzerland; abstract. G. Soberski. Elec W 67:1002 Ap 29 '16

United States

- Business conditions in the industry. Elec R & W Elec'n 69:411-14 S 2 '16
 Can the jobber's small order pay its way? E. E. Whitehorn. Elec W 67:927-9 Ap 22 '16
 Census figures on electrical manufactures show great increase from 1909-1914. Elec R & W Elec'n 69:668 O 14 '16
 Census of electrical industries. W. M. Steuart. Elec Ry J 48:779-82 O 14 '16
 Census of electrical machinery, apparatus and supplies. Elec W 68:264-5 Ag 5 '16
 Commercial practice in New England; discussion at Boston convention of New England section of the N. E. L. A. Elec R & W Elec'n 68:503-4 Mr 18 '16
 Demand for electrical machinery overtaking capacity to produce. E. R. Harding. Elec W 67:37 Ja 1 '16
 Developments in the electrical industry during 1915. J. Liston. il diag Gen Elec R 19:4-23 Ja '16
 Electrical exports for June and for the fiscal year 1915-1916. Elec R & W Elec'n 69:401 S 2 '16
 Electrical exports for December and the year 1915. Elec R & W Elec'n 68:403 Mr 4 '16
 Electrical exports for 1915. Elec W 67:585 Mr 11 '16
 Electrical industry at the foundation of defense. H. E. Coffin. Elec W 68:462 S 2 '16
 Estimated value of materials used in electrical industry; tabulation. Elec R & W Elec'n 68:13 Ja 1 '16
 Foreign markets for electrical goods. R. A. Lundquist. Elec W 68:898-9 N 4 '16
 Greatest aggregation of related industries in the world. H. A. Wagner. Elec W 68:462 S 2 '16
 Higher prices for electrical materials. Elec W 67:78-80 Ja 8 '16
 Increase of \$5,200,000 in March energy revenue. Elec W 67:1300-1 Je 3 '16
 Lighting industry earned \$360,000,000 in 1915. Elec W 67:38-40 Ja 1 '16
 Mobilization of the electrical industry. il map Elec W 68:461-3 S 2 '16

- New construction plans on a large scale. Elec W 67:135 Ja 15 '16

- One year of commercial achievement. il Elec W 67:1161-3 My 20 '16

- Opportunities ahead for electrical supply manufacturers. R. K. Smeppard. Elec W 67:36-7 Ja 1 '16

- Present conditions in the electrical industry. E. W. Rice, jr. Gen Elec R 19:1050-4 D '16; Same cond. Elec R & W Elec'n 69:548-9 S 23 '16; Same cond. Elec W 68:560 S 16 '16

- Present status of the electrical industry; with special reference to the Westinghouse electric and manufacturing co.; abstracts. G. E. Tripp. Elec R & W Elec'n 69:547-8 S 23 '16; Elec W 68:561-2 S 16 '16

- Promoting the electrical export business. Elec W 68:613-14 S 23 '16

- Prosperity with the electrical manufacturers. A. W. Berresford. Elec W 68:167-9 Jl 22 '16

- Record year for electric appliance sales at Denver. Elec W 67:328 F 5 '16

- Representation in foreign electrical markets. il Elec W 68:854-5 O 28 '16

- Statistics of American electrical industries in 1915. T. C. Martin. Elec W 67:13-14 Ja 1 '16

- Value of products of American electrical manufacturers. Elec R & W Elec'n 69:340 Ag 19 '16

- Western Electric developments in 1915. Elec R & W Elec'n 68:39-40 Ja 1 '16

- Westinghouse Electric developments in 1915. Elec R & W Elec'n 68:41-4 Ja 1 '16

Electric inspection

- Need for strict civil-service examinations for inspectors. Elec R & W Elec'n 69:896-7 N 18 '16

- Raising standards of electrical construction. Elec R & W Elec'n 69:164-6 Jl 22 '16

- System of keeping records of current work in electrical inspection department. W. Devereux. Elec R & W Elec'n 67:1122-5, 1156-8 D 18-25 '15

- Uniform inspection of electrical installations advocated at convention of New England electrical contractors. Elec R & W Elec'n 69:709-10 O 21 '16

Electric instruments

- See also Electric apparatus and appliances; Electric measurement; Electric meters; Electric testing

Electric insulation. See Insulation

Electric irons

- Electric irons with resistors embedded in alumina. il Elec W 67:729 Mr 25 '16

- Electrical manufacturing operations. C. L. Lucas. il Mach 22:745 My '16

- Improved Dover electric flatirons. il Elec R & W Elec'n 68:691-2 Ap 15 '16

- Increased use of electricity in garment trade. il Elec R & W Elec'n 68:465 Mr 11 '16

- Reimers regulator flatiron. il Elec R & W Elec'n 68:86 Ja 8 '16

- Taking account of psychology in electric-iron sales methods. Elec W 66:1419 D 25 '15

Electric laboratories

- Electrical laboratory of a public service commission. il Elec W 67:753-4 Ap 1 '16

Electric lamps

- Developments in electric-lighting appliances; abstract. G. H. Stickney. Elec R & W Elec'n 69:595 S 30 '16

- Effect of voltage variation on lamp performance and cost. Elec R & W Elec'n 69:596 S 30 '16

- Every man his own electric lamp. Sci Am S 81:341 My 27 '16

- Free lamp renewal policy of Edison companies. Elec W 66:1303-4 D 11 '15

- Gaseous conductor lamps for color matching. D. M. Moore. il diag Illum Eng Soc 11:192-219 no 2 '16; Abstracts. Elec W 66:1160 N 20 '15; Elec R & W Elec'n 67:949 N 20 '15;

- Met & Chem Eng 13:885 D 1 '15; Eng M 51:440-1 Je '16

- How to increase factory efficiency. O. M. Becker. il Eng M 51:177-93 My '16

- Photometry of electric lamps. Elec W 67:162-3 Ja 15 '16

- Review of the N. E. L. A. lamp committee report. G. F. Morrison. il Gen Elec R 19:723-9 Ag '16

Electric lamps—Continued

Tungsten vs. carbon lamps. J. C. Hawkins. Power 43:229-30 F 15 '16

See also Electric flashlights; Electric lanterns; Electric light fixtures; Electric lighting; Headlights; Locomotive headlights; Safety lamps; Electric; Searchlights

Rating

Rating of train lighting lamps; report of A. R. E. E. committee. Ry Age 61:842 N 10 '16

Testing

Combination fuse and lamp test board. E. D. Ransom. diag Elec Ry J 48:455 S 9 '16

Interlaboratory photometric comparison of glass screens and of tungsten lamps, involving color differences; with discussion. G. W. Middlekauff and J. F. Skogland. Illum Eng Soc 11:164-86 no 2 '16

Electric lamps, Arc

Arc lamps for exterior lighting. il Elec R & W Elec'n 68:402 S 2 '16

Arc lamps for street illumination. C. A. B. Halvorson, jr., S. C. Rogers and R. B. Hussey. il diags Illum Eng Soc 11:251-68 no 3 '16

Enclosed cadmium-vapor arc lamp. H. J. S. Sand. J Fr Inst 181:722 My '16

Flame arcs. il Elec R & W Elec'n 68:207-8 Ja 29 '16

Kliegl portable lighting unit for motion-picture photography. il Elec R & W Elec'n 69:37 J1 1 '16; Elec W 68:96 J1 8 '16

Multiple-flaming-arc lamps. il Elec W 67:393 F 12 '16

Progress in arc lamp technology. il Sci Am S 81:380-1 Je 10 '16

Report of the committee on progress; arc lamps. Illum Eng Soc 11:716-18 no 8 '16

Time required to trim magnetite arc lamps. Elec W 68:1007 N 18 '16

Wiring for constant-potential arc lamps and vapor lamps. T. Croft. diags Elec R & W Elec'n 69:247-8 Ag 5 '16

See also Electric lamps, Mercury vapor

Electric lamps, Arc incandescent

Arcs in gases between non-vaporizing electrodes. G. M. J. Mackay and C. V. Ferguson. il diag J Fr Inst 181:209-16 F '16; Excerpts. Elec W 67:889-90 Ap 15 '16

Electric arc in vapors and gases at reduced pressures. W. A. Darrach. il diags Met & Chem Eng 13:915-18 D 1 '15; Same. Sci Am S 81:29-30 Ja 8 '16; Abstract. Illum Eng Soc 11:933-5 no 8 '16

Gas-filled arc lamp. Elec R & W Elec'n 67:1166 D 25 '15

New high-efficiency incandescent lamp. E. A. Gimmingham and S. R. Mullah. il diags Inst E E J 54:15-19 D 1 '15; Same cond. Engineer 120:583 D 17 '15; Same cond. Sci Am S 81:109 F 12 '16; Same cond. Eng M 50:786-7 F '16; Abstract. Elec W 67:52-3 Ja 1 '16

Recent developments in electric incandescent lamps in relation to illuminating engineering. J. T. Morris. il diags Illum Engr 9:6-13; Discussion. 14-26 Ja '16

Tungsten arc lamp. il Elec W 67:218-19 Ja 22 '16

Tungsten arc lamp for projector lanterns. il diag Elec W 67:446-7 F 19 '16

Two recent developments in electric illuminating devices. il Sci Am 114:422 Ap 22 '16

See also Electric lamps, Incandescent

Electric lamps, Incandescent

Development of electric incandescent lamps from 1908 to 1914. X. Remy. Illum Engr 9:29-30 Ja '16

Filament temperature of electric incandescent lamps; abstract. M. Pirani and A. R. Meyer. Elec W 66:1438 D 25 '15

Hubbell locking lamps. diags Elec R & W Elec'n 68:1043 Je 3 '16; Elec W 67:1260 My 27 '16

Incidents of applied research. W. R. Whitney. J Ind & Eng Chem 8:563-4 Je '16

Modern gas-filled incandescent lamps; abstract. M. Pirani and A. R. Meyer. Elec W 66:1268 D 4 '15

New types of incandescent lamps and their relation to the street lighting problem. W. H. Robinson. il diags Illum Eng Soc 11:269-81 no 3 '16

Photometry of gas-filled lamps; abstracts. G. W. Middlekauff and J. O. Skogland. Sci Am S 81:323 My 20 '16; Illum Engr 9:263 Ag '16

Platinum substitutes in lamp making. J Ind & Eng Chem 8:86 Ja '16

Portable floor lamp. W; T. Estlick. diag Elec R & W Elec'n 67:1147 D 25 '15

Presentation of honorary membership to Thomas Alva Edison. J. W. Lieb. Illum Eng Soc 11:601-21 no 6 '16

Problems in the use of electric incandescent lamps. Illum Engr 9:245-8 Ag '16

Progress of metallic filament lamps; abstract. Elec W 67:834-5 Ap 8 '16

Recent developments in electric incandescent lamps in relation to illuminating engineering. J. T. Morris. il diags Illum Engr 9:6-13; Discussion. 14-26 Ja '16

Selective radiation from osmium filaments; abstract. E. F. Barker. Elec W 67:1252 My 27 '16

Super-efficiency carbon-filament lamp. il Elec W 68:453 S 2 '16

Work of Thomas Alva Edison in the field of illumination with relation to the contemporary state of the art. J. W. Lieb. Gen Elec R 19:332-41 My '16

See also Electric lamps, Tungsten; Safety lamps, Electric

Testing

Candle-power measurements of series gas-filled incandescent lamps. R. C. Robinson. il diags Gen Elec R 19:323-6 Ap '16; Same cond. Illum Eng Soc 11:387-91 no 2 '16; Same cond. Elec R & W Elec'n 68:458 Mr 11 '16; Abstract. Illum Engr 9:135 Ap '16; Discussion. Illum Eng Soc 11:190-1 no 2 '16

Interpretation of forced life tests of incandescent electric lamps; with discussion. L. J. Lewinson. bibliog Illum Eng Soc 11:815-35 no 8 '16

Life testing of incandescent lamps at the Bureau of standards. G. W. Middlekauff, B. Mulligan and J. F. Skogland. il diag Illum Eng Soc 10:814-37; Discussion. 837-42 no 8 '15

Variables of lamp-testing results. P. S. Millar and L. J. Lewinson. Elec R & W Elec'n 68:1062 Je 10 '16

Electric lamps, Mercury vapor

Industrial lighting with mercury-vapor lamps. W. A. D. Evans. bibliog il Illum Eng Soc 10:883-903 no 9 '15

Lighting of a tennis court by mercury vapour lamps. il Illum Engr 9:293 S '16

Lighting of steel mills with quartz lamps. G. C. Keech. il plan Elec R & W Elec'n 69:508-10 S '16 '16

Wiring for mercury-vapor lamps. diags Elec R & W Elec'n 69:248, 555 Ag 5, S 23 '16

Electric lamps, Miniature

Small incandescent lamps and special illumination problems. R. P. Burrows. il diags Illum Eng Soc 10:pt 1a 1171-85 no 9 '15

Electric lamps, Tungsten

Characteristics of tungsten filaments as functions of temperature. I. Langmuir. Gen Elec R 19:208-12 Mr '16

Electric bulbs for automobiles. H. Schroeder. diags Horseless Age 37:70-1 Ja 15 '16

Helical tungsten filament. B. E. Shackelford. il Elec W 68:1062-3 N 25 '16

Incandescent lamp developments. G. S. Merrill. Illum Eng Soc 11:525-38 no 4 '16; Abstract, with discussion. Elec R & W Elec'n 68:536 Mr 25 '16

Incandescent lamp policy of Edison companies. Elec W 68:900-1 N 4 '16

Interior illumination with Mazda C lamps. A. L. Powell. il Gen Elec R 19:787-92 S '16

Lighting a small art gallery with gas-filled lamps. A. L. Abbott. il diag Elec W 67:710-11 Mr 25 '16

Lighting system at Titusville, Pa. il Elec W 68:1053-4 N 25 '16

Long life tungsten lamp. Elec W 68:812 O 21 '16

Mazda lamp in photography. W. E. Brewster. il diags Gen Elec R 19:186-94 Mr '16

Nitrogen filled incandescent lamp for street lighting. A. H. Ford. Eng & Contr 45:305-6 Mr 29 '16

Electric lamps, Tungsten—Continued

- Operating gas-filled lamps at over-voltage in photographic work. *diag Elec W 67:384 F 12 '16*
- Present practise in the lighting of armories and gymnasiums with tungsten filament lamps; with discussion. A. L. Powell and A. B. Oday. *il Illum Eng Soc 10:746-65 no 8 '15; Table. Illum Eng Soc 10:pt 1a app 1 no 9 '15*
- Report of the committee on progress; electric incandescent lamps. *Illum Eng Soc 11:711-16 no 8 '16*
- Small incandescent lamps and special illumination problems. R. P. Burrows. *il diags Illum Eng Soc 10:pt 1a 1171-85 no 9 '15*
- Triumph gas-filled lamps. *il Elec W 67:282 Ja 29 '16*
- Tungsten-lamp patent decision. *Elec W 67:417-18 F 19 '16*

See also Automobiles—Lighting; Electric lamps, Arc incandescent

Electric lanterns

- Handy battery-operated lantern. *il Elec W 66:1276 D 4 '15*
- Lantern which casts no downward shadows. *il Elec Ry J 46:1133 D 4 '15*

Electric law. *See Electric engineering—Laws and regulations; Electric railroads—Law*

Electric light. *See Electric lighting*

Electric light and power association, Northwest. *See Northwest electric light and power association*

Electric light association, National. *See National electric light association*

Electric light association, Ohio. *See Ohio electric light association*

Electric light fixtures

- Adjustable bowl hanger. *il Elec W 67:674 Mr 18 '16*
- Benjamin half-watt accessories. *il Illum Engr 8:510 D '15*
- Burr lighting equipment for high-efficiency lamps. *il Elec R & W Elec'n 67:1083-4 D 11 '15*
- Central-station activities in Philadelphia. *il Elec R & W Elec'n 69:242-3 Ag 5 '16*
- Dustproof commercial and industrial lighting fixture. *il Elec W 67:448 F 19 '16*
- Examples of modern fittings for half-watt lamps. F. W. Willcox. *il Illum Engr 9:19 Ja '16*
- Fixture selection and maintenance in office building lighting. S. G. Hibben. *plan Elec W 68:676-7 S 30 '16*
- Holophane electric light fittings. *il Illum Engr 9:108-9 Mr '16*
- Installation of lighting units in power stations. M. M. Samuels. *il diags Elec W 67:1091-4 My 13 '16*
- Lighting of a passenger steamer; with discussion. H. T. Spaulding. *il diags Illum Eng Soc 10:680-9 no 8 '15*
- Method of suspending heavy electroliers for a church. J. B. Story. *diag Elec R & W Elec'n 68:515 Mr 18 '16*
- Modern practice in residence lighting. J. R. Cravath. *il Elec R & W Elec'n 69:403-6 S 2 '16*

- New lighting unit for gas-filled lamps. *il Elec R & W Elec'n 68:431-2 Mr 4 '16*
- Newest types of lighting fixtures. *il Elec R & W Elec'n 69:438-46 S 2 '16*
- Ohmrite fixtures for interior lighting. *il Elec R & W Elec'n 69:652 O 7 '16*

Ornamental brackets for use at doorways of public buildings. *il Elec R & W Elec'n 68:432-3 Mr 4 '16*

Retherford electric fixtures. *il Elec R & W Elec'n 68:433 Mr 4 '16*

Simple device for hanging electric fixtures. *diags Elec R & W Elec'n 68:214 Ja 29 '16*

Table, desk and bed lamps. *il Elec W 66:144-5 D 25 '15*

Vapor-proof lighting fixtures. *il Elec W 67:337 F 5 '16*

Electric light plants, Municipal. *See Electric plants, Municipal*

Electric lighting

Classification of farm lighting systems. C. H. Roth. *Elec R & W Elec'n 68:101 Ja 15 '16*

Concealed lighting that emphasizes architectural features of St. Helena cathedral interior, Helena, Mont. J. L. Stair. *il Elec W 68:88-9 Jl 8 '16*

Electric lighting and illuminating engineering. C. E. Clewell. *Elec R & W Elec'n 68:9-10 Ja 1 '16*

Electric lighting in small houses; abstract. J. Cleary. *Elec W 67:163 Ja 15 '16*

Electric lighting of a movie studio. W. E. Brewster. *il diag Elec W 68:1051-3 N 25 '16*

Electric lighting of railway passenger cars; abstracts. Ry R 57:696-9 N 27 '15; Ry Age (Mech ed) 89:620-2 D '15

Electric service in largest office building; Equitable building, New York city. R. D. Ward. *il plan Elec W 67:136-40 Ja 15 '16*

Electrical installation in Boston armory. *il Elec R & W Elec'n 68:290-1 F 12 '16*

Explanation of a rational basis of comparing gas and electric lighting. G. C. Shadwell. *Am Gas Light J 104:65-7 Ja 31 '16*

Gas and electric lighting in the home. C. H. French and C. J. Van Gieson. *Gas Age 38:365-6 O 2 '16*

Industrial lighting from the new aspect. C. E. Clewell. *il Elec R & W Elec'n 69:407-10, 463-6 S 2-9 '16*

Interior illumination with Mazda C lamps. A. L. Powell. *il Gen Elec R 19:787-92 S '16*

Lamp trolley for the inspection shop. A. O. Reinke. *diags Elec Ry J 47:867-8 My 6 '16*

Lighting a church auditorium without fixtures. A. L. Powell and R. B. Thompson. *il diags Elec W 67:482-4 F 26 '16*

Lighting Cleveland museum of art with daylight lamps. *il plan Elec W 68:859-61 O 28 '16*

Lighting features of Cleveland industrial exposition. *il Elec R & W Elec'n 69:680 O 14 '16*

Lighting in downtown office buildings; with discussion. A. O. Dicker and J. J. Kirk. *il Illum Eng Soc 10:659-69 no 8 '15*

Lighting of a modern photographic studio. V. A. Clarke. *il diags Elec R & W Elec'n 68:1024-6 Je 3 '16*

Lighting of stores and public buildings. W. R. Moulton. *il Elec R & W Elec'n 68:918-20 My 20 '16*

Lighting that combines art and science. L. Bell. *il Elec W 68:467-70 S 2 '16*

Lighting the Cleveland museum of art. *il diags plan Elec R & W Elec'n 69:842-6, 885-7 N 11-18 '16*

Matthews self-contained automatic lighting plant. *il Elec R & W Elec'n 68:126-7 Ja 15 '16*

N. E. L. A. 39th annual convention; abstracts of papers and reports. *Elec W 67:1230-3 My 27 '16*

Progress of illumination. C. P. Steinmetz. *Elec W 67:973 Ap 23 '16*

Reflector units for tennis-court lighting arranged for lowering. *il Elec W 68:136 Jl 15 '16*

Sanitary district lighting of Chicago parks. *Elec W 68:541 S 9 '16*

Semi-direct office lighting in the Edison building of Chicago; with discussion. W. A. Durgin and J. B. Jackson. *il Illum Eng Soc 10:690-715 no 8 '15*

See also Automobiles—Lighting; Car lighting; Electric arc; Electric distribution; Electric lamps; Electric light fixtures; Electric meters; Electric plants; Electric signs; Electric wire and wiring; Factories—Lighting; Headlights; Light projection; Locomotive headlights; Photometry; Schoolhouses—Lighting; Searchlights; Show windows; Street lighting; Street lighting fixtures; Switchboards

Cost

Cost of electric light. F. C. Meyers. *Sci Am 115:512 D 2 '16*

Rates

Active-room system of rates. *Elec W 67:774-5 Ap 1 '16*

Central-station rate making. F. Tarr. *Power 42:798-9 D 7 '15*

Central-station rate making. P. J. Kiefer. *Power 43:119-20 Ja 25 '16*

Decision in Pacific power & light company's rate case. *Elec W 67:6-7 Ja 1 '16*

Electric lighting—Rates—Continued

- Distribution system for domestic power service from commercial and engineering standpoints. C. H. Hoge and E. R. Perry. Am Inst E E Pro 35:1279 Ag '16
- Features of the Milwaukee rate schedule. Elec W 66:1431 D 25 '15
- Fort Wayne company offers to take over municipal lighting plant. Elec W 67:531 Mr 4 '16
- Lethbridge municipal power plant. A. G. Christie. Power 43:466 Ap 4 '16
- Lower rates at Fall River, Mass. Elec R & W Elec'n 67:1101 D 18 '15
- Many instances of reduction in rates for electricity this fall. Elec R & W Elec'n 69:849 N 11 '16
- Milwaukee residential electric rates reduced. Elec R & W Elec'n 69:682 O 14 '16
- Minimum charges for electricity in cities of 250,000 and over. Elec W 68:343 Ag 12 '16
- Municipal lighting plants; figures concerning electric light plants, collected by Mass. state commission. Munic J 40:12-13 Ja 6 '16
- Municipal power plant at Calgary, Canada. A. G. Christie. Power 43:389-90 Mr 21 '16
- Municipal power plant at Medicine Hat, Can. A. G. Christie. Power 43:141 F 1 '16
- Municipally-operated electrical utilities of western Canada. A. G. Christie. Am Inst E E Pro 35:327-37 F '16
- New rate schedule adopted by New Orleans company. Elec R & W Elec'n 67:1102 D 18 '15
- Philadelphia rate case settled. Elec W 67:972-3 Ap 29 '16
- Public service commission orders Brooklyn Edison electric rates reduced. Elec W 68:893-4 N 4 '16
- Rates and rate making. P. M. Lincoln. diags Am Inst E E Pro 34:2175-2214 O '15; Abstract. Elec R & W Elec'n 67:722-3 O 16 '15; Discussion. Am Inst E E Pro 35:71-112 Ja '16
- Rates for electric service. W. C. Beckjord. Elec R & W Elec'n 68:1073-5 Je 10 '16
- Rates for residence lighting. Elec W 68:243 Jl 29 '16
- Rates paid by dry goods stores. Elec W 68:732-3 O 7 '16
- Selling energy along interurban railways. Elec Ry J 48:922-5 O 28 '16
- Street-lighting rates for New Brunswick. N. J. Elec R & W Elec'n 69:283 Ag 12 '16
- Value of the poor man's business. E. E. Whitehorne. Il Elec W 67:201-3 Ja 22 '16

See also Electric power—Rates

Electric lighting, Decorative

- Christmas illumination of Boston store. Il Elec W 66:1420 D 25 '15
- Color effects and indirect lighting in a Los Angeles restaurant. F. S. Mills and J. A. Hoeveler. Il Elec W 68:1106 D 2 '16

Electric lighting companies. See Electric service companies

Electric lighting fixtures. See Electric light fixtures

Electric lighting plants. See Electric plants; ~ Electric plants, Municipal

Electric lines

- Feakish causes of transmission line troubles. Elec R & W Elec'n 69:555 S 23 '16
- Home-made reel stands for stringing transmission-line conductors. diag Elec W 66:1260 D 4 '15
- How an Indiana company saves secondary circuit copper by use of overhead ground wire. Il diag Elec W 68:480-1 S 2 '16
- Identification record for overhead primary circuits. R. A. Paine, Jr. map Elec W 68:325 Ag 12 '16
- Mechanical strength of copper wire splices. E. R. Shepard. Elec W 68:366-8 Ag 19 '16
- Method of insulating conductors at angles of tower lines that decreased cost of construction. H. B. Sweeny. diags Elec W 67:601 Mr 11 '16
- Method of stretching three line wires at one time. H. H. Fenton. diag Elec W 68:767 O 14 '16
- Protecting tower lines from sleet. T. Holmgren. Elec W 66:1372 D 18 '15
- Scheme for ridding lines of sleet. N. A. Kemish. Elec W 68:237 Jl 29 '16

- Steel conductors for transmission lines. H. B. Dwight. Am Inst E E Pro 35:1259-72 Ag '16; Excerpts. Power 44:502-3 O 3 '16; Abstract. Elec Ry J 48:898-9 O 21 '16
- Substituting copper for aluminum. Il Elec W 66:1432 D 25 '15
- Transmission-line conductors should be attached to their supports. R. D. Coombs. Elec W 66:1436 D 25 '15
- Transmission line to connect Massachusetts central stations. Elec R & W Elec'n 68:544 Mr 25 '16

See also Electric cables; Electric conduits; Electric fuses; Electric protective apparatus; Electric railroads; Electric service companies; Electric transmission; Electric wire and wiring; Hydroelectric plants; Poles; Telegraph; Telephone; Telephone lines

Cost

- Characteristics of iron and steel conductors. C. E. Cakes and W. Eckley. Elec W 68:761-2 O 14 '16
- Construction costs for two 100,000-volt Montana transmission lines. Il Elec W 68:371 Ag 19 '16
- Construction costs on substation, high-tension line and street lighting. Elec R & W Elec'n 68:34 Ja 1 '16
- Cost of installing street lighting cables in Boston. Elec W 67:1165 My 20 '16
- Cost of rural lines and revenue therefrom. Elec W 68:708-10 O 7 '16
- Data on cost of overhead and underground construction. L. W. Moxey, Jr. Elec W 66:1378-9 D 18 '15
- Design of high-pressure distribution systems. J. R. Beard. diags Inst E E J 54:125-41 Ja 1 '16
- Detailed cost of 13,000-volt line. Elec W 67:155 Ja 15 '16
- Inexpensive rural transmission line. H. H. Fenton. Elec W 68:672-3 S 30 '16
- Pole lines of C. M. & St. P. electrification; comparative costs of wood-pole and steel-tower construction. Il Elec R & W Elec'n 69:590-3 S 30 '16

Inductive interference

- Causes of telephone noise and its elimination. F. T. Coldwell. diag Elec W 67:1420-1 Je 17 '16
- How a transmission company prevented telephone troubles. F. M. Gillespie. diags Elec W 66:1315-16 D 11 '15
- Inductive interference as a practical problem. A. H. Griswold and R. W. Mastick. diags Am Inst E E Pro 35:1339-75 S '16
- Progress of the investigation of inductive interference by the joint committee on inductive interference; with discussion. Am Inst E E Pro 35:401-13 Mr '16
- Protection of telephone circuits used in electric power distribution. E. K. Shelton. Il diag Gen Elec R 19:1126-33 D '16
- Solution of telephone interference trouble by sectionalizing overhead ground wire. J. N. Cadby. Elec W 67:1307 Je 3 '16

Maintenance and repair

- Equipping motor trucks for central station service. Il Elec W 68:903-6 N 4 '16
- How a pole was moved over an obstruction while circuits were alive. A. C. Hewitt. Il Elec W 67:378-9 F 12 '16
- Loose-leaf sheets a convenience for troublemen. diag maps Elec R & W Elec'n 68:645 Ap 8 '16
- Method of protecting linemen when working on a transmission network. W. G. Brookins. Elec W 67:497 F 26 '16
- Method of severing high-tension lines while energized. Il Elec W 67:1164 My 20 '16
- Methods for working on live high-voltage lines. J. O. Hardin. Il Elec W 67:1346-50 Je 10 '16
- Motor trucks equipped for construction service. Il Elec W 68:666-9 S 30 '16
- Repairing a transmission line in a storm. Portland, Ore. Il Elec W 67:808 Ap 8 '16
- Safety attachment for lineman's hoist. R. A. Paine, Jr. diags Elec W 67:1165 My 20 '16
- Testing for defective insulators on high-tension transmission lines. E. G. Flaherty. Il Am Inst E E Pro 35:1221-35 Ag '16

Electric lines—Maintenance and repair—Cont.
Tools for high-tension-line maintenance. il Elec W 66:1385-6 D 18 '15

Electric lines, Artificial
Artificial transmission line with adjustable line constants. C. E. Magnusson and S. R. Burbank. bibliog 12 pls diags Am Inst E E Pro 35:1245-57 Ag '16

Electric locomotives
Auxiliary equipment of the Chicago, Milwaukee & St. Paul locomotives. L. W. Webb. il diags Gen Elec R 19:952-6 N '16
Bethlehem Chile iron mines electrification. W. S. Bourlier. Gen Elec R 19:996-7 N '16
Chattering wheel slip in electric motive power. G. M. Eaton. il diags Am Inst E E Pro 35:147-51 F '16; Same cond. Elec Ry J 47:312-13 F 12 '16; Same cond. Ry Mech Eng 90:178-9 Ap '16; Discussion. Am Inst E E Pro 35:718-20 My '16
Combination gathering motor. F. J. Foley. il diag Coal Age 8:928-9 D 4 '15
D. c. regenerative locomotive on the Lake Erie & Northern. C. C. Whittaker. il diag Elec Ry J 48:730-1 O 7 '16
Electric locomotive; abstract. F. W. Carter. Elec R & W Elec'n 68:606 Ap 1 '16
Electric locomotive drives. F. H. Shepard. il Elec Ry J 47:1085-9 Je 10 '16
Electric locomotive on Italian state railways; abstract. L. Pahn. Elec W 67:53 Ja 1 '16
Electric locomotives for interurban service. S. T. Dodd. il Gen Elec R 19:674-84 Ag '16
Electric locomotives for spotting service. R. K. Culbertson. Elec Ry J 47:462-3 Mr 4 '16
Electric switching locomotives for the C. M. & St. P. Ry. L. C. Josephs, jr. diag Ry R 58:518-19 Ap 8 '16
Electric traction a success on C. M. & St. P. Ry. il Eng N 76:26-7 Jl 6 '16
Electrical railways. H. M. Hobart. Engineer 120:606, 608, 628-9; 121:44-5, 68-9, 90-2, 105-8, 134-5, 149 D 24-31 '15; Ja 14-F 18 '16
Electrification for heavy freight traffic in England; Northeastern railways' line between Shildon and Newport. F. C. Coleman. il map Ry R 59:208-12 Ag 12 '16
Electrification of an English freight line. il diag Elec Ry J 48:5-6 Jl 1 '16
Electrification of the mountain district of the Chicago, Milwaukee & St. Paul railway. W. D. Bearce. il map Gen Elec R 19:924-9 N '16
First multiple-unit electric locomotives? H. J. Kennedy. Elec Ry J 48:1114-15 N 25 '16
Freight locomotives for the South Shore lines. il diag Elec Ry J 48:1018-21 N 11 '16
Heating boilers for electric locomotives. il diags Elec Ry J 47:1080-4 Je 10 '16
Induction motors on Norfolk & Western. Q. W. Hershey. Elec Ry J 47:453-4 Mr 4 '16
Interurban railway system in Utah: the Ogden Logan & Idaho Ry. il map Ry R 57:764-6 D 11 '15
Mechanical and electrical features of the C. M. & St. P. locomotives. il Elec Ry J 48:888-94 O 21 '16; Same abr. Gen Elec R 19:929-36 N '16; Same abr. Ry R 59:717-20 N 25 '16
Mechanical design of electric locomotives. A. F. Batchelder. Ry Mech Eng 90:558-60 N '16; Same. Ry Age 61:989-90 D 1 '16; Same cond. Am Soc M E E J 38:882-3 N '16; Same cond. Elec Ry J 48:977-8 N 4 '16
Modern electric mine locomotive. G. Bright. il Am Inst E E Pro 34:1615-20 Ag '15; Same. Colliery 36:145-6 O '15; Discussion. Am Inst E E Pro 35:420-1 Mr '16
Motor used on the 300-ton locomotives of the Chicago, Milwaukee & St. Paul railway. E. D. Priest. il diags Gen Elec R 19:937-42 N '16
Motors and phase converters on the N. & W. locomotives. J. V. Dobson. il Elec Ry J 47:644-5 Ap 1 '16
New idea in electric locomotives; why the N. & W. electric locomotives have polypphase motor. B. K. Reynolds. il Sci Am S 81:36 Ja 15 '16
New locomotives for the Midl railway. diag map Elec Ry J 47:1040-1 Je 3 '16
Norfolk & Western electrification. il plan Ry Mech Eng 90:121-4 Mr '16
Novel combination locomotive. E. C. De Wolfe. il Coal Age 8:923-5 D 4 '15

Operation of locomotives in service on the Chicago, Milwaukee & St. Paul railway. W. S. H. Hamilton. il Gen Elec R 19:957-66 N '16
Operation of Norfolk & Western's electrified line. il diag Ry Age 60:354-7 F 25 '16
Performance of electric locomotives on the Norfolk & Western Ry. Q. W. Hershey. Ry R 58:405 Mr 18 '16
Practical results obtained by electrification on the Chicago, Milwaukee & St. Paul railway. C. A. Goodnow. il Gen Elec R 19:910-15 N '16
Series motors as generators. Elec Ry J 48:1090 N 25 '16
Shildon-Newport electrification scheme. il diags (supp) Engineer 121:452-5, 458 Je 2 '16
600-1200-volt steel freight locomotive, Iowa railway & light co. il Elec Ry J 47:48-9 Ja 1 '16
Starting heavy trains on the Norfolk & Western electrified line. Ry Age 60:170 Ja 28 '16
Storage-battery locomotive in a coal mine. F. J. Foley. il Coal Age 9:587-8 Ap 1 '16
Switching locomotive for the Chicago, Milwaukee & St. Paul railway. L. C. Josephs, jr. diag Gen Elec R 19:222-4 Mr '16; Abstract. Elec Ry J 47:465-6 Mr 4 '16
See also Electric tractors; Railroads—Electrification

Bearings

Five-thousand pound capacity ball bearings for electric locomotive service. il diags Sci Am 115:97 Jl 29 '16

Control

Control equipment, with regenerative electric braking feature, on the locomotives of the Chicago, Milwaukee & St. Paul railway. R. Stearns. il diags Gen Elec R 19:942-51 N '16
Liquid rheostat in locomotive service. A. J. Hall. il diags Am Inst E E Pro 35:153-7 F '16; Same cond. Elec Ry J 47:313-14 F 12 '16
Regenerative electric braking; J. J. Linebaugh. il Gen Elec R 19:967-72 N '16; Abstract. Eng N 76:902-3 N 9 '16

Repair

Electric locomotive maintenance on Pennsylvania railroad. il diags plan Elec Ry J 47:1120-4 Je 17 '16
Repairing electric locomotive resistance grids. T. B. Ray. il Elec Ry J 47:322-4 F 12 '16

Testing

St. Paul locomotive tests. il Elec Ry J 46:1215-16 D 18 '15

Electric losses. See Eddy currents; Electric machinery—Losses

Electric machinery

Breakdowns of electrical machinery; abstract. C. S. Buyers. Elec W 68:381 Ag 19 '16
Classification of electromagnet machinery. F. Creedy. diags Am Inst E E Pro 34:1399-1423 Jl '15; Discussion. 35:726-38 My '16
Classification of rotating machines relative to degree of enclosure or protection. Gen Elec R 19:1138-9 D '16
Difficulties of design of high-speed generators. A. B. Field. il Inst E E J 54:65-76 D 15 '15; Discussion. 54:77-83, 171-86, 296-303 D 15 '15-
Ja 1, F 1 '16
Efficiency. H. M. Hobart. Gen Elec R 19:272-6 Ap '16
Electrical machine bearings. G. Fox. diags Power 44:340-2 S 5 '16
Electrical-machine shafts. P. Justus. il Power 44:381 S 12 '16
Electrical machinery sections of the standardization rules of the American institute of electrical engineers. H. M. Hobart. diags Gen Elec R 19:145-56 F '16
Excitation of synchronous machines. T. Schou. Elec W 67:368-71, 429-30 F 12-19 '16
Fundamental principles of alternating current. F. A. Annett. diags Power 42:789-91, 852-4, 897-8; 43:182-4, 211-13, 538-41 D 7, 21-28 '15, F 8-15, Ap 18 '16
Higher prices for electrical materials. Elec W 67:7-80 Ja 8 '16
Interpoles, their principles and usage. G. Fox. diags Elec R & W Elec'n 69:109-13 Jl 15 '16
Output limitations in direct-current machines. A. Gray. Elec W 68:809-10 O 21 '16

Electric machinery—Continued

Physical limitations in d-c. commutating machinery. B. G. Lamme. *Am Inst E E Pro* 34:1559-1614 Ag '15; Discussion. 35:211-16 F '16

Pitting and discoloration of slip rings. M. A. Walker. *Power* 44:533-4 O 10 '16

Practical experience in the operation of electrical machinery. E. C. Parham. *diags Gen Elec R* 17:909-12, 961-3, 1193-6; 18:56-9, 146-7, 217-18, 304-7, 401-4, 666-8, 861-2, 928-9, 1003-5, 1082-3, 1146-8; 19:79-80, 159, 327, 411-12, 811-12, 1095-6 S-O, D '14-My, J1 '15-F, Ap-MY, S, D '16

Predetermination of the performance of dynamo-electric machinery. M. Walker. *diags Inst E E J* 54:245-65 F 1 '16; Discussion. 54:265-73, 389-402, 426-31 F 1-Mr 1 '16

Tendencies in design and construction of power-station equipment. P. Torchio. *Elec W* 67:19-20 Ja 1 '16

See also Brushes (electric machinery); Commutators; Dynamos; Electric apparatus and appliances; Electric controllers; Electric driving; Electric engineering; Electric equipment; Electric locomotives; Electric motors; Electric plants; Electric protective apparatus; Electric shovels; Electric tractors; Electric transformers; Electricity in mining; Electricity on ships; Electricity on the farm; Elevators, Electric; Hydroelectric plants; Motor generators; Rotary converters; Ship propulsion, Electric

Losses

Armature copper losses in rotary converters and double-current generators. L. H. A. Carr. *Inst E E J* 54:49-52 D 1 '15

Iron losses in direct-current machines. B. G. Lamme. *diags Am Inst E E Pro* 35:345-70 Mr '16; Discussion. 35:1100-12 J1 '16

Losses in continuous-current motors and generators. A. M. Bennett. *Power* 43:616-19 My 2 '16

Predetermination of the performance of dynamo-electric machinery. M. Walker. *Inst E E J* 54:262-4 F 1 '16

Stray losses in direct-current machines. W. C. King, M. B. McDermott and F. W. Maxstadt. *Elec W* 68:334 Ag 12 '16

See also Eddy currents

Temperature

Effect of barometric pressure on temperature rise of self-cooled stationary induction apparatus. V. M. Montsinger. *diags Am Inst E E Pro* 35:451-78 Ap '16; Discussion. 35:1494-1500 O '16

Heating and ventilation of electrical machinery. A. Gray. *diags Sibley J* 31:14-21 O '16

Rational temperature guarantees for large A-C. generators. F. D. Newbury. *Am Inst E E Pro* 35:1597-1610 N '16

Report of the transmission committee: data from operating plants on the effect of altitude on the operating temperature rise of electrical apparatus. P. H. Thomas. *Am Inst E E Pro* 35:901-6 Je '16

Temperature distributions in electrical machinery. B. G. Lamme. *diags Am Inst E E Pro* 35:1579-96 N '16

Ventilation

Effect of ventilation on the heat dissipated from the external surface of field coils. G. D. Floyd. *diags Sibley J* 31:43-5 N '16

Heating and ventilation of electrical machinery. A. Gray. *diags Sibley J* 31:14-21 O '16

Ventilating electric machines. G. Fox. *diags Power* 44:238-40 Ag 15 '16

Ventilation as a factor in the economical design of electrical machinery. E. Knowlton. *diags Gen Elec R* 19:406-11, 595-602 My, J1 '16

See also Electric motors—Ventilation

Electric measurement

Analytical determination of mean effective current. C. O. Mailloux. *Elec W* 67:837 Ap 8 '16

Analytical determination of mean effective current. W. D. Peaslee. *Elec W* 67:644 Mr 18 '16

Calculation of the maximum force between two coaxial circular currents. F. W. Grover. *U S Bur Stand Bul* 12:317-73 F 3 '16

Calibration of current transformers by means of mutual inductance. C. Fortescue. *diags pls Am Inst E E Pro* 34:1199-1215 Je '15; Discussion. 35:38-48 Ja '16

Compensated dynamometer wattmeter method of measuring dielectric energy loss. G. B. Shanklin. *il diags Gen Elec R* 19:842-53 O '16

Determination of the mean effective current for a given duty cycle. D. D. Ewing. *Elec W* 67:949 Ap 22 '16

Device for calculating currents in complex networks of lines. *il diags Gen Elec R* 19:901-2 O '16

Ignition magnetos; abstract. D. Nobili and G. Campos. *diag Elec W* 67:1114 My 13 '16

Inexpensive substitute for a set of feeder ammeters. C. W. Bates. *il diags Elec W* 66:1374-5 D 18 '15

Investigation of dielectric losses with the cathode ray tube. J. P. Minton. *il Am Inst E E Pro* 34:1115-65 Je '15; Discussion. 35:21-34 Ja '16

Measurement of high voltage. W. R. Work. *il diags Am Inst E E Pro* 35:203-10 F '16; Discussion. 35:1063-82 J1 '16

Measuring energy in unbalanced circuits—common errors. G. W. Tefteau, jr. *diag Elec W* 68:426-7 Ag 26 '16

Meter errors in parallel supply of fluctuating loads. *diag Elec W* 67:1252-3 My 27 '16

Methods of making electrolysis surveys. B. McCollum and G. H. Ahlborn. *il diags U S Bur Stand Tech Pa* 28:1-84 '16

New form of high voltage measuring instrument. J. B. Whitehead. *il Sci Am* 115:167 Ag 19 '16

Notes from the Palmer physical laboratory. E. F. Northrup. *Met & Chem Eng* 15:193-7 Ag 15 '16

Phase angle of current transformers. C. L. Dawes. *Am Inst E E Pro* 34:927-40 My '15; Discussion. 35:42-6 Ja '16

Simple thermal instruments for the measurement of small high-frequency currents; abstract. W. H. Eccles and A. J. Makower. *Elec W* 66:1383 D 18 '15

Source of error when using the sphere gap. R. H. Marvin. *Elec W* 67:649-50 Mr 18 '16

Studies in the measurement of the electrical conductivity of solutions at different frequencies. W. A. Taylor and S. F. Acree. *diags Am Chem Soc J* 38:2396-430 N '16

Voltmeter coil in testing transformers. A. B. Hendricks, jr. *Am Inst E E Pro* 35:1338 F '16; Discussion. 35:1063-82 J1 '16

See also Circular mil; Eddy currents; Electric meters; Electric resistance; Electric testing; Electric units; Electric waves; Inductance; Oscillograph; Thermocouples; Voltmeters

Electric meters

Ammeter used as a wattmeter. M. A. Walker. *Power* 44:522 O 10 '16

Apartment house meter board with special washing-machine circuits. *il Elec W* 68:531-2 S 9 '16

Effect of magnetic fields on electric meters. *Sci Am S* 81:64 Ja 22 '16

Encouraging customers to read their meters. *Elec W* 67:160 Ja 15 '16

Esterline recording instruments. *il Elec R & W Elec'n* 67:1167 D 25 '15; Same. *Elec Ry J* 47:50 Ja 1 '16

Indicating frequency meter; abstract. G. Keinath. *diags Elec W* 67:611 Mr 11 '16

Meter carrier, a handy contrivance in electrolysis surveys and test work. L. E. Darling. *il diag Elec R & W Elec'n* 68:1158 Je 24 '16

Outdoor metering equipments. *il Elec W* 68:729-30 O 7 '16; *Elec R & W Elec'n* 69:652-3 O 7 '16; *Elec Ry J* 48:900-1 O 21 '16

Power factor meters. R. D. Gifford. *il diags Engineer* 122:149-50 Ag 18 '16

Rates and rate making. P. M. Lincoln. *diags Am Inst E E Pro* 34:2175-2214 O '15; Abstracts. *Elec R & W Elec'n* 67:722-3 O 16 '15; *Elec W* 66:849 O 16 '15; Discussion. *Am Inst E E Pro* 35:71-112 Ja '16

Electric meters—Continued

- Sangamo economy meter. *il Elec Ry J* 47:704-5 Ap 8 '16
- Serving at different rates through one meter. *il diag Elec R & W Elec'n* 69:891 N 18 '16
- System of serially numbering customer's meters. W. H. Fellows. *Elec W* 67:1100 My 13 '16
- Westinghouse direct-current automobile meters. *il Elec R & W Elec'n* 63:655 O 7 '16
- See also* Ammeters; Ampere-hour meters; Electric measurement; Electric testing; Voltmeters; Voltmeters; Watt-hour meters; Wattmeters

Testing

- Developments in meter testing methods and apparatus. O. A. Knopp. *il Elec W* 68:947-51 N 11 '16
- Meter-test current from portable batteries. *il Elec W* 67:373-4 F 12 '16
- Meter-testing blocks for use with alternating-current watt-hour meters. *il Elec R & W Elec'n* 69:902-3 N 18 '16; *Elec W* 68:1017 N 13 '16
- Method of ascertaining error in indicating instruments. P. A. Borden. *diags Elec W* 67:495 F 26 '16
- Securing meter test current from portable batteries. R. S. White. *il Elec W* 67:657 Mr 13 '16

Electric mining. *See* Electricity in mining

Electric motors

- Adjustable speed induction motors. *il diags Engineer* 121:528 Je 23 '16; Same cond. *Elec W* 68:534-5 S 9 '16
- All-gear motor drive for cone-pulley lathes. *il Elec W* 67:674 Mr 18 '16
- Alternating-current motor windings. J. Lebovici. *diags Elec R & W Elec'n* 68:1123-6, 1159-62; 69:29-32, 68-71 Je 17-Jl 8 '16
- Alternating-current motors. J. Lebovici. *diags Elec R & W Elec'n* 68:720-3, 766-70, 812-14 Ap 22-My 6 '16
- Alternating current single-phase induction motor. A. E. Watson. *diags Sci Am S* 81:92-4 F 5 '16
- Analytical determination of mean effective current. C. O. Mailoux. *Elec W* 67:837 Ap 8 '16
- Analytical determination of mean effective current. W. D. Peaslee. *diags Elec W* 67:644 Mr 18 '16
- Basis for motor specifications. J. H. Schakne. *il diags Elec W* 68:909-10 N 4 '16
- Brush-shifting polyphase series motor. W. C. K. Altes. *il diags Gen Elec R* 19:115-26, 199-207 F-Mr '16
- Care of electric motors. *Textile World* 51:2671 Je 3 '16
- Characteristics of the high-resistance rotor, squirrel-cage motor for elevator service and a comparison with the phase-wound rotor machine. R. H. McLain. *Gen Elec R* 19:69-74 Ja '16
- Common cause of high electric power bills. A. G. Drury. *Mach* 23:59 S '16
- Comparative economies of old and new motors. W. A. Clough. *Elec Ry J* 47:1181-3 Je 24 '16
- Conventional representation of an induction motor. *diags Power* 44:59 Jl 11 '16
- Countershaft induction motor with base. *il Elec R & W Elec'n* 68:171 Ja 22 '16; *Elec W* 67:225 Ja 22 '16
- Desirable characteristics of mill drives. R. Tschentscher. *il Elec R & W Elec'n* 69:505-7 S 16 '16
- D. C. motor insurance reduced in Indiana. *plan Elec Ry J* 47:95 Ja 8 '16
- Direct-current motors of the smaller sizes. *il Elec R & W Elec'n* 68:1171 Je 24 '16; *Elec W* 68:96 Jl 8 '16; *Metal Ind n s* 14:307 Jl '16
- Effect of rotor resistance in an induction motor. M. E. Wagner. *diags Power* 44:18 Jl 4 '16
- Electric direct-driven dental engine of light weight. *il Elec R & W Elec'n* 68:257 F 5 '16; *Elec W* 67:170 Ja 15 '16
- Electric drive for reversing mills. W. Sykes and D. Hall. *il diags Am Inst E E Pro* 35:739-57 Je '16; Same cond. *Iron Tr R* 59:420-2 Ag 31 '16; Discussion. *Am Inst E E Pro* 35:1474-91 O '16
- Electric motor as an economic factor in industrial life. D. B. Rushmore. *Gen Elec R* 19:43-53 Ja '16; Excerpt (Varieties of electric motors). *Sci Am S* 81:249 Ap 15 '16
- Electric motor for phonograph drive. *il Elec R & W Elec'n* 69:212 Jl 29 '16
- Electric motor for phonographs. *il Elec W* 68:1067 N 25 '16
- Electrification of isolated factories. *diags Engineer* 121:191-2, 231-2 Mr 3, 17 '16
- Elevator motor. *il Elec W* 67:59 Ja 1 '16
- Essential considerations when selecting steel mill motors. C. E. Bedell. *Elec W* 68:816 O 21 '16
- Explosion-proof motors operating in mines. C. W. Larson. *il Gen Elec R* 19:646-8 Jl '16
- Features of synchronous motor design. W. J. Foster. *il Gen Elec R* 19:449-56 Je '16
- Heavy duty induction motor. *il Iron Tr R* 58:1100 My 18 '16
- Higher harmonics of induction motors due to winding distribution. A. H. Mittag. *Gen Elec R* 19:234-6 Mr '16
- Hire and maintenance of continuous-current motors. H. Joseph. *Inst E E J* 54:564-70 My 1 '16; Abstract. *Elec W* 67:1482-3 Je 24 '16; Discussion. *Inst E E J* 54:570-9 My 1 '16
- How to select industrial motors. T. R. Hay. *il Eng M* 51:344-54 Je '16
- Induction-motor characteristics. H. M. Phillips. *Power* 43:682-4 My 16 '16; Same. *Coal Age* 9:369-71 Je 3 '16
- Induction motor for turntables and transfer tables. *il Ry Mech Eng* 90:373 Jl '16
- Kazoo variable-speed single-phase motor. *il Elec R & W Elec'n* 69:737-8 O 21 '16
- Lecture course on elements of heating; use of electric power for fan drives. C. A. Fuller. *Metal Work* 86:1-3 Jl 7 '16
- Maladjustment of motors. G. Fox. *Elec R & W Elec'n* 68:511 Mr 18 '16
- Modista motors for sewing-machines. *il Elec W* 67:787 Ap 1 '16
- Motor for operating disk-type phonographs. *il Elec W* 66:1334 D 11 '15
- Multiphase from single phase. G. Fox. *Power* 43:366 Mr 14 '16
- Polyphase commutator motor. R. Moser. *Elec W* 68:138-9 Jl 15 '16
- Polyphase motor windings. J. Lebovici. *diags Elec R & W Elec'n* 69:249-52, 292-5, 333-5, 375-7, 419-23, 474-6, 515-18, 556-61, 599-602, 640-4, 685-9, 724-6 Ag 5-O 21 '16
- Polyphase motors with rotor-centering bearings. *il Elec W* 68:921 N 4 '16
- Recent improvements in repulsion-induction motors. *il diags Elec W* 67:390-2 F 12 '16
- Repulsion start induction motor. J. L. Hamilton. *diags Am Inst E E Pro* 34:2389-420 O '15; Discussion. 35:484-91 Ap '16
- Resistance-reactance single-phase motors on three-phase service. G. A. Schneider. *Elec R & W Elec'n* 68:240-1 F 5 '16
- Reversed motor phase. E. C. Parham. *diags Power* 43:670 My 9 '16
- Rewinding a small motor. P. Justus. *diags Power* 43:413 Mr 21 '16
- Rewinding induction motors. G. Sabonjian. *diags Power* 44:198-9 Ag 8 '16
- Sewing machine motors. *il Elec W* 68:1113 D 2 '16
- Single-phase alternating current motors. W. C. K. Altes and N. Currie, jr. *il Gen Elec R* 19:579-85 Jl '16
- Single-phase motor development. R. J. Russell. *Elec R & W Elec'n* 68:127 Ja 15 '16
- Slip-ring induction motor. *il Elec W* 67:1179 My 20 '16
- Sturtevant four-pole motors for driving ventilators. *il Elec W* 67:447-8 F 19 '16
- Theory of the single-phase alternating-current motor. W. C. K. Altes. *diags Gen Elec R* 19:1072-83 D '16 (to be cont)
- Three-phase induction motors used on single-phase circuits; abstract. M. Rosenbaum. *diags Elec W* 67:666-7 Mr 18 '16
- Toy motor. *il Elec W* 67:335 F 5 '16
- Two electric motors in one for oil wells. I. B. Smith. *il Sci Am* 115:86 Jl 22 '16

Electric motors—Continued

- Two-speed alternating-current elevator motor. *il Elec R & W Elec'n* 69:342-3 Ag 19 '16; *Eng M* 52:sup 6-8 O '16; *Power* 44:521-2 O 10 '16
- Uneconomical installation. B. A. Briggs. *diag Power* 44:286 Ag 22 '16
- Use of 220-volt motors on 110-volt circuit. B. A. Briggs. *Power* 44:64 J1 11 '16
- Veeco electric motor for driving phonographs. *il Elec R & W Elec'n* 69:260 Ag 5 '16; *Elec W* 67:1375 Je 10 '16
- Washing-machine motor. *il Elec W* 67:335-6 F 5 '16; *Elec R & W Elec'n* 68:303 F 12 '16
- Why with one motor running another failed to start on same circuit. A. C. Hewitt. *diag Elec W* 67:96-7 Ja 8 '16

See also Armatures; Commutators; Dynamos; Electric controllers; Electric driving; Electric locomotives; Electric machinery; Electric power; Electric transformers; Motor generators

Bearings

- Ball bearings for mine motors. A. H. Maccaffray. *Coal Age* 9:584-5 Ap 1 '16
- Ball bearings on electric motors. F. E. Rogers, Jr. *il diags Elec R & W Elec'n* 68:560-2 Mr 25 '16
- Eliminating the loose armature bearing. *diag Elec Ry J* 48:369 Ag 26 '16
- Mandrel for babbitting motor axle bearings. F. G. Lister. *diags Elec Ry J* 46:1266 D 25 '15

Control

- Construction and operation of eddy-current brake to serve as motor load. C. W. Green. *diags Elec W* 67:213-14 Ja 22 '16
- Controlling large motors. I. B. Smith. *il diag Power* 43:392-3 Mr 21 '16
- Convenient place for machine-tool motor control apparatus. *diag Elec W* 68:23 J1 1 '16
- Economic control of the electrical apparatus used in the rubber industry. H. E. Dexter. *il diags Gen Elec R* 19:630-7 J1 '16
- Electric operation and automatic electric control for machine tools. L. C. Brooks. *il diags Am Soc M E J* 38:112-17 F '16; *Same*. *Iron Tr R* 58:479-86 Mr 2 '16; *Abstract*. *Iron Age* 96:1406-7 D 16 '15; *Discussion*. *Am Soc M E J* 38:117-21 F '16; *Discussion*. *Iron Tr R* 58:542-5, 591-2 Mr 9-16 '16
- Electrical control for traverser car. *il Elec R & W Elec'n* 67:1168-9 D 25 '15
- Industrial control. A. E. Button. *Gen Elec R* 19:1107-18 D '16
- Industrial control. L. C. Brooks. *Gen Elec R* 19:629-30 J1 '16
- Industrial control; accelerating characteristics of centrifugal pumps and fans. B. W. Jones. *diag Gen Elec R* 19:703-5 Ag '16
- Installation of a large magnetic clutch-brake, Boston woven hose and rubber co. C. B. Ferguson. *il Elec R & W Elec'n* 68:125-6 Ja 15 '16; *Same*. *Met & Chem Eng* 14:60-1 Ja 1 '16; *Same*. *cond. Elec W* 67:153-4 Ja 15 '16
- Intermittent duty universal controller. *il Iron Age* 97:545 Mr 2 '16
- Liquid rheostatic control for large alternating-current wound-rotor motors. *il diag Elec W* 68:922-3 N 4 '16; *Elec R & W Elec'n* 69:861-2 N 11 '16; *Eng & Contr* 46:430 N 15 '16
- Magnetic control for steel mills; applications to alternating-current motors. G. E. Stack. *il diags Gen Elec R* 19:745-54 S '16
- Magnetic control for steel mills; applications to speed-regulating sets. H. I. Smith and G. E. Stack. *il diags Gen Elec R* 19:834-41 O '16
- Motor drive for steel mills. F. B. Crosby. *il diags Gen Elec R* 19:282-96 Ap '16
- Motor-driven pumping installation at Leonard mine, Butte, Mont. R. H. Richards. *il plan Elec W* 67:321-2 F 5 '16
- Principles and systems of electric motor control. C. D. Knight. *il diags Am Inst E E Pro* 34:2915-26 D '15; *Same*. *cond. Power* 43:94-5 Ja 18 '16; *Abstract with discussion*. *Elec R & W Elec'n* 67:1111-12 D 18 '15; *Discussion*. *Am Inst E E Pro* 35:667-80 Mr '16
- Problems in d. c. motor control. H. F. Stratton. *diags Iron Tr R* 59:991-7+ N 16 '16; *Same*. *cond. Iron Age* 98:1166-70 N 23 '16
- Speed-control system for traction motors. *diag Elec W* 68:386 Ag 19 '16

- Starting and controlling apparatus; abstract. C. C. Garrard. *Elec W* 67:891 Ap 15 '16
- Wiring features of direct-current motor control. *diags Elec R & W Elec'n* 68:242-4 F 5 '16

See also Electric railroads—Control

Nomenclature

- Classification based on restricted number of types unsatisfactory. V. A. Fynn. *Elec W* 66:1370 D 18 '15
- Classification of alternating-current motors. C. A. Adams. *Elec W* 66:1439 D 25 '15
- Classification of alternating-current motors. V. A. Fynn. *diags Am Inst E E Pro* 34:959-1000 My '15; *Discussion*. 35:726-38 My '16
- Classification of electromagnetic machinery. F. Creedy. *diags Am Inst E E Pro* 34:1399-1423 J1 '15; *Discussion*. 35:726-38 My '16
- Classification of single-phase alternating-current motors. V. A. Fynn. *Elec W* 67:780-1 Ap 1 '16
- Fundamental types of single-phase commutator motors. W. C. K. Altes. *diags Elec W* 66:1368-70 D 18 '15
- Nomenclature of a-c. commutator motors; report of subcommittee no. 6. *Am Inst E E Pro* 35:1167-9 J1 '16

Repair

- Cost of motor repairs. G. A. Schneider. *Elec R & W Elec'n* 68:32-4 Ja 1 '16

Speed control

See Electric motors—Control

Starting devices

- Automatic timing device on new C-H motor starter prevents improper starting and line surges. *il Elec R & W Elec'n* 69:822 N 4 '16; *Elec W* 68:924 N 4 '16
- Changing connections of a motor starter to improve starting conditions. B. C. Rathbun. *diag Elec W* 67:379 F 12 '16
- Changing connections of a motor starter to improve starting torque. L. Kebler. *diag Elec W* 67:265 Ja 29 '16
- Cutler-Hammer automatic starter and speed-regulating controller for slip-ring induction motors. *il Elec R & W Elec'n* 69:387-8 Ag 26 '16; *Elec W* 68:433 Ag 26 '16
- Direct-current and alternating-current hand starters. *il Elec W* 67:57 Ja 1 '16
- How an operator secured a better starting torque from shunt motor. *diag Elec W* 66:1317 D 11 '15
- Oil starter for induction motors. *il Eng M* 51:sup 6-7 My '16
- Safety release for motor starter. J. Domerhuizen. *diag Elec R & W Elec'n* 69:67 J1 8 '16
- Self-starter for small direct-current motors. *il Elec R & W Elec'n* 67:1128 D 18 '15; *Same*. *Elec W* 67:226 Ja 22 '16
- Starting currents of interurban car motors. D. D. Ewing. *Elec Ry J* 47:90-1 Ja 8 '16
- Westinghouse starting switch for split-phase motors. *il Elec R & W Elec'n* 69:387 Ag 26 '16; *Elec W* 68:434-5 Ag 26 '16

Starting resistance

- Direct-current motor starters. J. H. McIlroy. *Elec R & W Elec'n* 68:642-3 Ap 8 '16

Testing

- Portable equipment for testing industrial plant motors. *diag Elec W* 68:481 S 2 '16
- Tests of field-control motors. H. A. Johnson. *Elec Ry J* 47:1183 Je 24 '16

Ventilation

- Modern electric mine locomotive. G. Bright. *il Am Inst E E Pro* 34:1615-20 Ag '15; *Same*. *Colliery* 36:145-6 O '15; *Discussion*. *Am Inst E E Pro* 35:420-1 Mr '16
- Ventilated motor housing. A. C. Daman. *diags Power* 44:601-2 O 24 '16

See also Electric motors, Railway—Ventilation

Electric motors, Railway

- Continuous-current railway motors. E. V. Fannell. *diags Inst E E J* 54:449-61 Ap 1 '16; *Abstract*. *Elec W* 67:835 Ap 3 '16; *Discussion*. *Inst E E J* 54:461-72, 659-60 Ap 1, Je 1 '16

Electric motors, Railway—Continued

- Control systems and wiring for railway motors. *il* diags Elec Ry J 48:651-7 S 30 '16
- Electrical repairs on controllers and motors in Los Angeles. J. L. Clark. *il* diags Elec Ry J 47:278-9 F 5 '16
- Eliminating the loose armature bearing. *diag* Elec Ry J 48:369 Ag 26 '16
- Gear case maintenance experience. Elec Ry J 48:1116-17 N 25 '16
- Induction motors on Norfolk & Western. Q. W. Hershey. Elec Ry J 47:453-4 Mr 4 '16
- Light weight railway motor (the GE-258). G. L. Schermerhorn. *il* Gen Elec R 19:1034-7 N '16
- Maintenance of GE-800 motors. J. R. Smith. *diags* Elec Ry J 47:1095 Je 10 '16
- Maintenance of motor leads. E. D. Ransom. *diags* Elec Ry J 47:1194-5 Je 24 '16
- Manchester to Bury electrification. *il* diags plans Engineer 121:127-8 F 11 '16
- Mechanical and electrical features of the C., M. & St. P. locomotives. *il* diags Elec Ry J 48:8-9-1 O 21 '16
- Mechanics of railway motors. R. E. Hellmund. Elec Ry J 47:860 My 6 '16
- Modern railway motor design and methods of construction. *il* *diag* Elec Ry J 48:643-9 S 30 '16
- Motor used on the 300-ton locomotives of the Chicago, Milwaukee & St. Paul railway. E. D. Priest. *il* diags Gen Elec R 19:937-42 N '16
- Motors and phase converters on the N. & W. locomotives. J. V. Dobson. *il* Elec Ry J 47:644-5 Ap 1 '16
- Providing for closer gear centers in motor design. F. W. McCloskey. *diag* Elec Ry J 48:408-9 S 2 '16
- Railway motor field control. D. C. Hershberger. *il* diags Elec Ry J 47:1178-81 Je 24 '16
- Recent developments in Sprague general electric PC control. F. E. Case. *il* *diag* Gen Elec R 19:1015-19 N '16
- Reclaiming GE-57 motors. R. W. Palmer. *il* Elec Ry J 47:132 Ja 15 '16
- Use of continuous current for terminal and trunk-line electrification. N. W. Storer. *diags* Inst E E J 54:521-34; Discussion. 535-49, 664-7 My 1-Je 1 '16
- Winter and summer motor covers effect economy. M. F. Flatley. *il* Elec Ry J 47:913-14 My 13 '16

Testing

- Brush tests on non-interpole motors with slotted commutators. K. Macleod. Elec Ry J 46:1179-81 D 11 '15
- Coil-testing transformer. G. F. Faber. *diag* Elec Ry J 48:364 Ag 26 '16
- Starting currents of interurban car motors. D. D. Ewing. Elec Ry J 47:90-1 Ja 8 '16
- Tests of field-control motors. H. A. Johnson. Elec Ry J 47:1183 Je 24 '16

Ventilation

- Fan ventilation of old-type motors. F. P. Maize. *il* Elec Ry J 48:284 Ag 12 '16
- Semi-ventilation of GE-57 motors. R. W. Palmer. *il* *diag* Elec Ry J 47:223-4 Ja 29 '16
- Summer ventilation for motors obtained by slight alterations. H. E. Wurzbach. *il* Elec Ry J 48:238 Ag 5 '16

Electric motors, Synchronous

- Excitation of synchronous machines. T. Schou. Elec W 67:429-30 F 19 '16
- Self-starting synchronous motors. *il* Elec W 68:491 S 2 '16; Elec R & W Elec'n 69:482 S 9 '16

Electric ovens

- Consolidated shell baking oven. *il* Mach 22:342 D '15
- Economic operation of electric ovens. P. W. Gumaer. *il* Am Inst E E Pro 34:1001-32 My '15; Abstract. Elec W 66:66-7 J1 10 '15; Discussion. Am Inst E E Pro 35:35-7 Ja '16
- Electric baking demonstration at Salt Lake City results in 12 installations. Elec R & W Elec'n 67:1061 D 11 '15
- Electric jappanning oven. Elec R & W Elec'n 69:76 J1 8 '16
- Electric ovens in an automobile plant. *il* Iron Age 98:1215-19 N 30 '16
- Hughes electric bake ovens. *il* Elec R & W Elec'n 69:692-3 O 14 '16

- Important industrial heating business secured by Los Angeles company. Elec R & W Elec'n 68:71 Ja 8 '16
- Industrial electric heating association, 2d convention, Nov. 26-27, 1915. *il* Elec W 66:1278-9 D 4 '15
- Salt Lake City wholesale baker installs mammoth electric bake oven. B. W. Mendenhall. *il* Elec W 68:437 Ag 26 '16; Same. Elec R & W Elec'n 69:369-70 Ag 26 '16

Electric pianos. See Piano players**Electric plants**

- Arrangement for the interchange of energy between isolated plant and central station. C. H. Shaw. *plan* Elec W 67:602-3 Mr 11 '16
- Bethlehem Chile iron mines electrification. W. S. Bourlier. *il* diags Gen Elec R 19:997-1005 N '16
- Breakdown service. J. C. Hawkins. Power 43:629-30 My 2 '16
- Building the Remington arms plant. C. E. Knox. *il* Arch & Bldg 48:41-5 Mr '16
- Carondelet power plant. T. Wilson. *il* *diag* plan Power 43:646-50 My 9 '16
- Construction and layout of high-tension equipment. M. M. Samuels. *il* diags Elec W 68:995-1000 N 18 '16
- Diesel-steam plants. G. Porter. Iron Age 98:405 Ag 24 '16
- Electrification of isolated factories. *diags* Engineer 121:57-8, 80-2, 104-5, 128-9, 150-2, 172-4, 191-2, 231-2, 274-5, 310-11, 382-3, 412-14, 476-7, 519-21; 122:3-4, 52-3, 94-5 Ja 21-Mr 3, 17, 31, Ap 14, My 5, 19, Je 9, 23, J1 7, 21, Ag 4 '16
- Generation of electricity on a small scale or bulk supply; abstract. H. S. Ellis. Elec W 68:235-6 J1 29 '16
- How the New York state barge canal will be operated. W. H. Yates. *il* diags Eng N 75:158:62 Ja 27 '16
- Power plant at Mooseheart, Ill. T. Wilson. *il* diags Power 43:426-9 Mr 28 '16
- Power plant for government buildings in Washington. *map* Eng N 75:426-8 Mr 2 '16
- Simple chart for finding plant efficiency. W. F. Schaphorst. Elec R & W Elec'n 69:17-18 J1 1 '16
- Steam-electric power plant of Alaska mine. *il* Elec R & W Elec'n 67:1097-1100 D 18 '15
- Twin-City power plants. T. Wilson. *il* Power 44:332-9 S 5 '16
- World's largest direct-current station, Ford motor co., Detroit. F. Allison. *il* *plan* Elec W 68:312-16 Ag 12 '16

See also Electric equipment; Electric plants, Municipal; Electric power; Electric railroads—Substations; Electric transmission; Hydroelectric plants; Steam plants

Central stations vs. isolated plants

- Central station and the small factory. C. A. Carpenter. Ind Management 52:305-7 D '16
- Central station for power in steel mills. Power 44:500-1; Discussion. 501-2 O 3 '16
- Future of the private plant. J. A. McHollan. Power 43:693-4 My 16 '16
- New York Hall of records test. A. Williams. Power 43:411-12 Mr 21 '16
- New York Hall of records test; results. Power 43:361-2 Mr 14 '16
- Power for steel mills. Iron Age 98:941-2 O 26 '16
- Relative value of private and purchased electric power for textile mills. F. W. Reynolds and D. Adams. Am Soc M E J 38:202-6 Mr '16; Same. Textile World 51:699, 713, 715, 779, 782 Ja 15 '16; Same cond. Power 43:90-2 Ja 18 '16; Discussion. Am Soc M E J 38:206-9 Mr '16
- Results of the Hall of records test; abstract. Am Soc M E J 38:602-3 J1 '16
- Sale of power to iron and steel mills. tables. Elec R & W Elec'n 69:553-4 S 23 '16
- Shall you make or buy power? J. J. Gillespie; W. M. Graff. Factory 17:202+, 592+ Ag, N '16
- Steam-heating and electric-service curves show fallacy of isolated plant for office building. *il* Elec W 66:1423-4 D 25 '15
- Use of central-station power by large users. abstracts. D. Elwell. Elec R & W Elec'n 69:720 O 21 '16; Elec W 68:958-9 N 11 '16

Electric plants—Continued**Cost of operation**

- Operating costs for municipal gas-engine plant. H. T. Mellings. *il Power* 44:13-14 J1 4 '16
- Operating costs for several Diesel engine installations. *il Elec W* 67:1419 Je 17 '16
- See also* Electric plants—Central stations vs. isolated plants

Load curves

- Alternating-current service for an office building. C. Klapper. *il Elec W* 68:560 S 30 '16
- Electric service in largest office building; Equitable building, New York city. R. D. Ward. *Elec W* 67:140 Ja 15 '16
- Features of domestic electric cooking and heating. H. B. Peirce. *diags Am Inst E E Pro* 35:1211-12 Ag '16
- Load curves that the electric range can level. *Elec W* 68:29 J1 1 '16
- Performance of Diesel-engine plants in Texas. R. H. Burdick. *il-diag plan Elec W* 67:587-92 Mr 11 '16
- Power generation for electric railways. H. G. Stott. *Elec Ry J* 47:1170-3 Je 24 '16
- Progress of economic power generation and distribution. S. Insull. *diags Am Soc M E J* 38:848-9 N '16
- Uniform load approached by bulk supply. W. N. Ryerson. *il Elec W* 67:698 Mr 25 '16
- When poor load-factor brings good business; electrical operation of grain elevators in Kansas City. *il Elec W* 67:158-60 Ja 15 '16
- Winning the electric-cooking load. S. M. Kennedy. *diag Elec W* 68:1097-1100 D 2 '16

Valuation

- Power plant inventory. J. C. Henriques. *Elec Ry J* 47:616-18 Mr 25 '16

Electric plants (central stations)

- Additions to Rhode Island power plant. *il diag plan Elec Ry J* 47:300-3 F 12 '16
- Casting station busbar compartments in place. *il Elec W* 68:179-80 J1 22 '16
- Changes in steam station of Rhode Island company. *il diag plan Elec W* 67:365-7 F 12 '16
- Commonwealth Edison company Harrison street generating station torn down after twenty years of service. *il Elec W* 67:1240-2 My 27 '16
- Concrete cells for circuit breakers and busbars. C. H. Sanderson. *il diags Elec W* 67:1402-4 Je 17 '16
- Conditions under which Oregon company burns wood. *il Elec W* 68:170-1 J1 22 '16
- Connors Creek plant, Detroit, Mich. Sibley J 30:112 D '15
- Construction and operation of a small steam plant. G. A. Collins. *il Elec W* 67:263-5 Ja 29 '16
- Design of power-station and substation bus structures. M. M. Samuels. *il diags Elec W* 67:142-5 Ja 15 '16
- Distribution of electric energy with particular reference to small properties. A. Hardgrave. *W Soc E J* 21:409-15 My '16
- Electric developments in Kansas City, Kans. *Elec R & W Elec'n* 68:505 Mr 18 '16
- Electric service in the "Pearl of the orient." *il Elec W* 67:476-8 F 26 '16
- Electric service problems and possibilities. P. Junkersfeld. *il diags Eng Soc W Pa* 32: 61-100; Discussion. 32:100-20 Mr '16
- Electric versus steam auxiliaries. W. H. Aldrich. *Power* 43:852 Je 13 '16
- Electrical system of small central stations. A. J. Goedjen. *diags W Soc E J* 21:403-9 My '16
- Electricity in rebuilt Salem. *il Elec W* 67:541-2 Mr 4 '16
- Engineering features of a new Illinois high-pressure steam station. *Elec W* 67:267 Ja 29 '16
- Enlarging important steam station under load; changes in system of West Penn traction company. *il plans map Elec W* 67:196-9 Ja 22 '16
- Essex power station, New Jersey. *il diags Power* 44:738-44 N 28 '16

- Fire prevention in electrical stations. H. L. Gannett. *Elec R & W Elec'n* 69:561 S 23 '16
- Growth of a combination utility in Cameron, Texas. A. C. Scott. *il Elec W* 67:1039-40 My 6 '16
- High coal economy at Connors Creek station of Detroit company. *Elec W* 67:152 Ja 15 '16
- High turbine economy at poor load factors at Dowagiac, Mich., and Hoopeston, Ill. *il Elec W* 68:66-8 J1 8 '16
- How generating facilities are provided economically for small lighting system. *Elec W* 67:322 F 5 '16
- Installation features at Alexandria (Va.) steam station. F. R. Weller. *il Elec W* 67:1105-6 My 13 '16
- Installing lighting plants in small villages. W. A. Magee. *Elec R & W Elec'n* 69:852-3 N 11 '16
- Lucerne mines power plant. W. O. Rogers. *il Power* 44:42-5 J1 11 '16
- Manchester to Bury electrification. *il plans Engineer* 121:52-5, 75-8 Ja 21-28 '16
- Methods for handling boilers in 100,000-kw. station of Boston Edison company. *il plan Elec W* 67:814-17 Ap 8 '16
- Modernizing Narragansett co.'s South street station. C. H. Bromley. *il plan Power* 42:884-90 D 28 '15
- New 50,000-kw. plant for Cincinnati. *Elec W* 67:527 Mr 4 '16
- New Fremont, Ohio, power plant. W. O. Rogers. *il diags Power* 44:576-82 O 24 '16
- Ohio station-operating men discuss selection of auxiliary equipment. *Elec W* 67:548 Mr 4 '16
- Operation of a small town generating station; Thompson, Iowa. *il diags Elec W* 67:982-3 Ap 29 '16
- Passing of Harrison street station, Chicago. *il Elec R & W Elec'n* 68:409 Mr 4 '16
- Power developments of urban transportation. C. W. Wilder. *il Eng M* 51:260-71 My '16
- Power station buildings. J. N. Hatch. *il W Soc E J* 21:266-82; Discussion. 282-7 Mr '16
- Power station records in Havana. *Elec Ry J* 48:72 J1 8 '16
- Power system of the Syracuse lighting co. N. G. Meade. *il plan Power* 44:116-19 J1 25 '16
- Progress of economic power generation and distribution. S. Insull. *il Am Soc M E J* 38: 845-54 N '16; Abstract (Rapid changes in the electric lighting industry). *Eng N* 76:1045 N 30 '16
- Public utility situation. G. E. Tripp. *Elec W* 67:310-11 F 5 '16
- Question of drive for station auxiliaries. W. W. Lackie. *Power* 43:601-2 Ap 25 '16
- Rejuvenation of the power plant of United illuminating co., New Haven, Conn. J. Breslay. *il plan Power* 43:34-6 Ja 11 '16
- Seventy-fourth street station, New York, and its new cross-compound turbines. H. G. Stott. *il Power* 43:733-4 My 23 '16; Abstract. *Elec Ry J* 47:903 My 13 '16
- Significant developments in prime movers. W. F. Durand. *Elec W* 67:20-2 Ja 1 '16
- Small generating station; abstract. G. Wilkinson. *Elec W* 68:284 Ag 5 '16
- Steel framing of a large power station, Newark, N. J. *il diags Eng N* 74:1260-4 D 30 '15
- Storage-battery auxiliary for small central station. *Elec R & W Elec'n* 69:649-50 O 7 '16
- 37,000 kw. turbine plant for New Bedford company. *il Elec W* 68:749-50 O 14 '16
- Traveling screens at Northwest station of Commonwealth Edison Co., Chicago. T. Wilson. *il diag Power* 43:680-2 My 16 '16
- Trend of central station development. L. A. Ferguson. *il Elec W* 67:1156-61 My 20 '16
- Two large new power plants, Fremont, Ohio. *il Elec Ry J* 47:325 F 12 '16
- Unit no. 3 at Northwest station of the Commonwealth Edison co., Chicago. T. Wilson. *il diags Power* 43:866-8 Je 20 '16; Abstract (Chicago station has 45,000-hp. steam turbine). *Eng N* 76:52-3 J1 13 '16
- Universal electricity supply. S. Insull. *Eng Soc W Pa* 32:187-94 Ap '16; Abstract. *Elec W* 67:133 Ja 15 '16; Abstract. *Elec R & W Elec'n* 68:140 Ja 22 '16

Electric plants (central stations)—Continued

West Penn traction co.'s Wheeling power plant. W. E. Moore. *il* plans Power 42:312-18 D 14 '15

See also Boiler plants; Electric distribution; Electric engineering; Electric lighting; Electric lines; Electric plants, Municipal; Electric railroads; Electric service companies; Electric shops; Electric transmission; Electricity in mining; Hydroelectric plants; Steam plants

Cost of power

See Power cost

Costs

Central-station costs in Massachusetts. Elec R & W Elec'n 68:234 F 12 '16

Central stations in Massachusetts reduce manufacturing cost. Elec R & W Elec'n 68:1072 Je 10 '16

Cost of a 2,900-kw. plant. Power 43:18 Ja 4 '16

Efficiency of municipal light plants; comparison of municipal and company plants in Massachusetts. Munic J 40:266-8 F 24 '16

Operating expenses for Massachusetts steam stations. Elec W 67:1418 Je 17 '16

Performance of Diesel-engine plants in Texas. R. H. Burdick. *il* diag plan Elec W 67:587-92 Mr 11 '16

Production cost in a 20,000-kw. Massachusetts central station. Elec W 68:671 S 30 '16

Standardization of power plant operating costs; with discussion. W. N. Polakov. Am Soc M E J 38:290-7 Ap '16; Excerpts. Iron Age 97:142-3 Ja 13 '16; Excerpts. Textile World 51:999+ F 5 '16

Station rated at 10,000 kw. produces energy at 6 mills. Elec W 67:99 Ja 8 '16

Unit operating expenses of several small Wisconsin utilities. Elec W 67:603 Mr 11 '16

Use of central-station power by large users; abstracts. D. Elwell. Elec R & W Elec'n 69:720 O 21 '16; Elec W 68:958-9 N 11 '16

Water power and transportation. L. B. Stillwell. Elec Ry J 47:822-3 Ap 29 '16

Equipment and supplies

Successful stores keeping system. C. Kist. Eng M 51:106-12 Ap '16

Lighting

Installation of lighting units in power stations. M. M. Samuels. *il* diag Elec W 67:1091-4 My 13 '16

Management

Central station and the stationary engineer. D. A. Early. Power 44:305-6 Ag 29 '16

Developing efficiency in central stations. C. M. Rogers. Power 44:8-10 Jl 4 '16

Developing efficiency in central stations. H. D. Fisher. Power 44:251-2 Ag 15 '16

Engineering economics and the small plant. P. J. Nilsen. Elec R & W Elec'n 69:230 Ag 5 '16

Load dispatching at East St. Louis, Ill. H. W. Clapp. *il* diag Elec Ry J 47:156-9 Ja 22 '16

Load dispatching by New England power company. *il* plan map Elec W 68:754-7 O 14 '16

Load dispatching by wireless on Pacific coast. L. T. Merwin. *il* Elec W 67:41-2 Ja 1 '16

Load-dispatching systems. P. J. Kent. *il* Power 43:361-2 Ja 11 '16

Manufacture of artificial ice by central stations. *il* diag Elec W 67:609-10 Mr 11 '16

Operating a station under unfavorable conditions. *il* diag plans Elec W 68:763-4 O 14 '16

Operating conditions at Newark, Ohio, power plant. W. O. Rogers. *il* Power 44:80-3 Jl 18 '16

Opportunities for standardization. R. I. Elkin. Elec W 67:781 Ap 1 '16

Regulating industrial plant loads to maintain high load factors. W. L. Frost. *il* Elec W 67:1363 Je 10 '16

Service to the public. T. R. Hay. Elec R & W Elec'n 68:236 F 5 '16

See also Electric power—Rates; Electric service companies—Management

Rates

See Electric lighting—Rates; Electric power—Rates

Safety devices and measures

Central-station accident prevention. G. O. Smith. Elec R & W Elec'n 68:506 Mr 18 '16

Statistics

August output record breaker. Elec W 68:907-8 N 4 '16

Central-station gains in a war-order zinc-mining district. *il* Elec W 67:249-50 Ja 29 '16

Central station statistics. Elec W 68:714-15 O 7 '16

Central stations of Japan. Elec W 68:169 Jl 22 '16

Effect of change of load factor on station operating expenses. Elec W 67:1306 Je 3 '16

Electric energy distribution of the Pacific power & light company. Elec R & W Elec'n 68:1023 Je 3 '16

Electric load and output in large cities; table. Power 43:395 Mr 21 '16

Electricity supply in Glasgow and Scotland; abstract. W. W. Lackie. Elec W 68:332 Ag 12 '16

Electricity supply in the British colonies. Elec W 67:778 Ap 1 '16

German central stations in war time; abstract. B. Thierbach. Elec W 67:53 Ja 1 '16

Iowa central station facts and factors. Elec W 67:1302-4 Je 3 '16

Large increase in central station business. Elec W 67:1045-7 My 6 '16

Lighting industry maintains large growth. Elec W 68:23-4 Jl 1 '16

Lighting industry started new year well. Elec W 67:764-5 Ap 1 '16

Manchester electrical supply; abstract. Elec W 68:139 Jl 15 '16

Massachusetts utilities make large gain over 1914-15. Elec R & W Elec'n 69:549 S 23 '16

November energy output 1,765,000,000 kw.-hr. Elec W 67:319-20 F 5 '16

Outputs of large generating systems; tabulation. Elec W 67:581-2 Mr 11 '16

Populations, customers and lamps compared; study of central-station conditions in Massachusetts cities. Elec R & W Elec'n 68:368 F 26 '16

Power-customer statistics in Massachusetts. Elec R & W Elec'n 68:459 Mr 11 '16

Ratio of coal consumption to energy generated. Elec R & W Elec'n 67:1064 D 11 '15

Results of light and power operations; recent earnings. Elec W 68:275-6 Ag 5 '16

Results of September central station operation. Elec W 68:1101-2 D 2 '15

Review of 1915 central-station operating results. Elec W 67:542-4 Mr 4 '16

Rural development of transmission lines in eastern Pennsylvania. J. W. Price. *il* Gen Elec R 19:109-14 F '16

Steady increases in light and power operations. Elec W 66:1248-50 D 4 '15

Use of electricity in North American cities. Eng N 74:1117 D 9 '15

Electric plants (substations)

Alternating-current service for an office building. C. Klapper. *il* diag Elec W 68:659-61 S 30 '16

Arrangement and cost of a 22,000-volt outdoor substation. *il* Elec W 68:766-7 O 14 '16

Compact alternating-current city substation. *il* plans Elec W 67:313-16 F 5 '16

Design and operation of horn-gap fuses. E. A. Dillard. *il* diag Elec W 66:1305-7 D 11 '15

Electrical construction at Crane plant, Chicago. *il* plans Elec R & W Elec'n 68:158-62 Ja 22 '16

Electrical features of a modern substation. *il* Elec R & W Elec'n 69:281-2 Ag 12 '16

High tension switching equipment. J. W. Upp. *il* plan Gen Elec R 19:386-94 N '16

How a downtown isolated plant was converted into a central-station substation. A. J. Goeden. *il* Elec W 67:1050 My 6 '16

Electric plants (substations)—Continued

- Outdoor steel substation of low construction and operating cost, Steubenville, O. il Elec R & W Elec'n 69:779 O 28 '16
- Outdoor substation for 6,000 kilovolt-amperes at Cohoes, N. Y. il Elec R & W Elec'n 68:562 Mr 25 '16
- Outdoor substations, H. W. Young. il Elec Ry J 47:347-8 Ap 1 '16
- Outdoor substations for irrigation pumping service. il Elec W 68:180-1 Jl 22 '16
- Recent installations made by Winnipeg company, H. A. P. Langstaff. il Elec W 68:705-8 O 7 '16
- Simplifications in design of outdoor stations. M. M. Samuels. il diags Elec W 67:865-8 Ap 15 '16
- Standby battery for a.c. distribution service. J. L. Woodbridge. il diags Elec W 67:257-60 Ja 29 '16
- Steel-tower outdoor substations. il Elec W 67:114 Ja 8 '16; Elec R & W Elec'n 68:87 Ja 8 '16
- Switchboard features in a new Boston substation. il Elec R & W Elec'n 68:196-7 Ja 29 '16
- Three thousand volt direct current substations. il Power 44:179-80 Ag 1 '16
- Transmission and distribution problems; report of committee of the Ohio electric light association; with discussion. Elec R & W Elec'n 69:238-41 Ag 5 '16

See also Electric railroads—Substations

Cost

- Bay State substations. Elec Ry J 47:164-5 Ja 22 '16
- Construction costs on substation, high-tension line and street lighting. Elec R & W Elec'n 68:34 Ja 1 '16
- Cost of outdoor substations. H. W. Young. Elec W 68:324-5 Ag 12 '16
- Installation costs for industrial plant substations. N. N. Teague. il Elec W 67:1353-8 Je 10 '16
- Outdoor substation of low cost. il Elec R & W Elec'n 69:565 S 23 '16
- 3000 to 5700-kva. substation at Steubenville, Ohio, built at low cost. L. J. McKenzie. il Elec W 68:270-1 Ag 5 '16

Electric plants, Municipal

- Accounting at Pasadena plant. L. R. W. Allison. Power 44:113-14 S 19 '16
- Calgary's municipal power plant. A. G. Christie. il diags Power 43:352-7, 389-90 Mr 14-21 '16
- Central station steam heating by Miles City, Montana, municipal plant. G. C. Pruett. Munic Eng 51:2-4 Jl '16
- Cleveland municipal plant. Power 44:389-90 S 12 '16
- Cleveland municipal plant. R. P. Bolton. Power 43:196 F 8 '16
- Cleveland municipal station shows loss. Elec W 68:1070 N 25 '16
- Cost of operating city lighting plant in Detroit. Elec W 67:997 Ap 29 '16
- Danville municipal lighting plant. W. O. Rogers. il diags Power 43:572-7 Ap 25 '16
- Diesel-engine operation at Palo Alto municipal plant. Power 43:610-11 My 2 '16
- Efficiency of municipal light plants; comparison of municipal and company plants in Massachusetts. Munic J 40:266-8 F 24 '16
- Experience with the Diesel engine in the municipal power plant of Palo Alto, Calif. J. F. Byxbee, jr. il Eng & Contr 45:44-7 Ja 12 '16
- Good showing of Cleveland municipal plant. Power 42:908-9 D 28 '15
- Guarding against municipal-plant agitation. G. Marston. Elec R & W Elec'n 69:632-3 O 7 '16
- High turbine economy at poor load factors at Dowagiac, Mich., and Hoopeston, Ill. il Elec W 68:66-8 Jl 8 '16
- Lethbridge municipal power plant. A. G. Christie. il plan Power 43:462-6 Ap 4 '16
- Manchester electricity undertaking; some recent and projected extensions. S. L. Pearce. Engineer 120:510 N 26 '15
- Municipal electric light plants in Massachusetts. Munic Eng 50:127 Ap '16
- Municipal lighting plant of Detroit, Michigan. il Munic Eng 50:185-6 My '16

- Municipal lighting plants; figures concerning electric light plants, collected by Mass. state commission. Munic J 40:12-13 Ja 6 '16
- Municipal operation criticised. C. W. Whiting. Elec R & W Elec'n 67:1100 D 18 '15
- Municipal power plant at Medicine Hat, Can. A. G. Christie. il plans Power 43:138-42 F 1 '16
- Municipal power plant operated by Saskatoon, Canada. A. G. Christie. il plan Power 43:606-9 My 2 '16
- Municipally-operated electrical utilities of western Canada. A. G. Christie. Am Inst E E Pro 35:289-343 F '16; Abstract. Power 43:378-81 Mr 14 '16; Discussion. Am Inst E E Pro 35:692-702 My '16
- Operating conditions at a Louisiana oil-engine plant. Elec W 66:1432-3 D 25 '15
- Operating costs for municipal gas-engine plant. H. T. Melling. il Power 44:13-14 Jl 4 '16
- Operating data for Topeka and McPherson, Kan., plants. Elec W 67:1103-4 My 13 '16
- Operating results of Cleveland municipal lighting plant. F. W. Ballard. Eng N 76:603 S 28 '16
- Operation of a small Diesel engine municipal plant; Downers Grove, Ill. il Elec W 68:513-14 S 9 '16
- Quitman, Ga., municipal water and light plant. F. B. Crowell. il Power 43:736-7 Je 6 '16
- Regina, Can., municipal power plant. A. G. Christie. il plans Power 42:776-81 D 7 '15
- Report shows Seattle municipal plant inadequate. Elec R & W Elec'n 68:187 Ja 29 '16
- Seattle needs more electricity; a number of sites which can be paid for with utility bonds are offered to city. Elec W 67:251 Ja 29 '16
- Showing of the Cleveland municipal plant. F. W. Ballard. Power 43:331-2 Mr 7 '16
- Street lighting in Detroit. Munic Eng 50:128-39 Ap '16
- Successful municipal lighting plant, Crawfordsville, Ind. Munic Eng 51:94 S '16
- Temporary generating station at Birmingham. il plan Engineer 120:502-3 N 26 '15
- Value of electric power to a municipality. C. P. Steinmetz. Munic J 41:377-8 S 28 '16
- Water power could not displace steam at Macon, Mo. E. White. Power 44:269 Ag 22 '16; Same cond. Coal Age 10:265 Ag 12 '16
- See also Hydroelectric plants, Municipal

Electric plants, Portable

- British military field workshop electricity generating plant. il Elec R & W Elec'n 68:711 Ap 22 '16
- Lighting plants for isolated dwellings. il Elec W 68:242 Jl 29 '16
- Main portable and stationary lighting plants. il Elec R & W Elec'n 68:731 Ap 22 '16
- Portable machine shop for U. S. army. il Elec W 68:263 Ag 5 '16
- Swartz electric lighting plant. Elec R & W Elec'n 69:78 Jl 8 '16

Electric potential. See Electric currents; Electromotive force

Electric power

- Analysis of Merrill report on water-power. Elec W 68:10-12, 69-70 Jl 1-8 '16
- Concentration of control of public utilities; government report to Senate. Elec W 67:302-9, 362-4 F 5-12 '16
- Development of electric power for industrial purposes in India. H. R. Speyer. Inst E E J 53:597-604 Ap 15 '15; Discussion. 54:661-3 Je 1 '16
- Economy of electrical supply. S: Insull. Elec W 68:1084 D 2 '16
- Electric motor as an economic factor in industrial life. D: B. Rushmore. Gen Elec R 19:43-53 Ja '16
- Electrically driven reversing rolling mills. W. Sykes. Iron Age 98:822 O 12 '16
- Government power monopoly in Germany. L. W. Schmidt. Power 43:223 F 15 '16
- How electricity is harnessed to terminal work. R. H. Rogers. il Int Marine Eng 21:464-7 O '16
- Inherent economic advantages of electric power. C: P. Steinmetz. Gen Elec R 19:431-3 Je '16

Electric power—Continued

Losses in delivery of energy from the coal pile to customer. H. A. Snow. Elec W 68:1104 D 2 '16
 Nevada Wonder mill; power consumption. A. C. Daman. il Eng & Min J 102:928 N 25 '16
 Value of electric power to a municipality. C. P. Steinmetz. Munic J 41:377-8 S 28 '16

See also Electric distribution; Electric driving; Electric equipment; Electric motors; Electric plants; Electric railroads; Electric transmission; Electricity in mining; Electricity on the farm; Hydroelectric power

Cost

See Power cost

Purchased power

See Electric plants—Central stations vs. isolated plants

Rates

Analysis of electric cooking. H. O. Swoboda. Elec R & W Elec'n 69:679-5 O 14 '16
 Best control of public utilities. F. G. Baum. Am Inst E E Pro 34:1-23 Ja '15; Abstract. Elec W 65:258-9 Ja 23 '15; Discussion. Am Inst E E Pro 35:58-70 Ja '16
 Central-station rate making. F. Tarr. Power 42:798-9 D 7 '15
 Central-station rate making. P. J. Kiefer. Power 43:119-20 Ja 25 '16
 Class rates for light and power systems or territories. F. G. Baum. Am Inst E E Pro 34:485-505 Ap '15; Abstract. Elec W 66:67 J1 10 '15; Discussion. Am Inst E E Pro 35:58-70 Ja '16
 Data on electric water-supply pumping for thirty-seven Iowa communities; tabulation. Elec W 68:423 Ag 26 '16
 Demand and load-factor systems. R. S. Hale. Elec Ry J 48:23 O 28 '16
 Distribution system for domestic power service from commercial and engineering standpoints. C. H. Hoge and E. R. Perry. Am Inst E E Pro 35:1279 Ag '16
 Electric heating of domestic hot-water supply at Seattle, Wash. Elec W 68:376 Ag 19 '16
 Electric heating rates; map. Elec W 68:605-6 S 23 '16
 Lethbridge municipal power plant. A. G. Christie. Power 43:466 Ap 4 '16
 Lower power rates for 135 Illinois towns. map. Elec W 68:361 Ag 19 '16
 Municipal power plant at Calgary, Canada. A. G. Christie. Power 43:389-90 Mr 21 '16
 Municipal power plant at Medicine Hat, Can. A. G. Christie. Power 43:142 F 1 '16
 Municipally-operated electrical utilities of western Canada. A. G. Christie. Am Inst E E Pro 35:327-37 F '16
 New area rate to encourage electric cooking at Waterbury, Conn. Elec W 67:383 F 12 '16
 New rate schedule adopted by New Orleans company. Elec R & W Elec'n 67:1102 D 18 '15
 Philadelphia rate case settled. Elec W 67:972-3 Ap 29 '16
 Proposed dividend-type domestic service rate. W. W. Briggs. Elec W 68:850-3 O 28 '16
 Public service commission orders Brooklyn Edison electric rates reduced. Elec W 68:893-4 N 4 '16
 Rates and rate making. P. M. Lincoln. diags Am Inst E E Pro 34:2175-2214 O '15; Abstract. Elec R & W Elec'n 67:722-3 O 16 '15; Discussion. Am Inst E E Pro 35:71-112 Ja '16
 Rates charged by various central stations for steel-mill service; table. Elec R & W Elec'n 69:553 S 23 '16
 Rates for electric service. W. C. Beckjord. Elec R & W Elec'n 68:1073-5 Je 10 '16
 Rates paid by dry goods stores. Elec W 68:732-3 O 7 '16
 Selling energy along interurban railways. Elec Ry J 48:922-5 O 28 '16

Electric power club

7th semi-annual meeting, Hot Springs, Va., Nov. 15-17. Elec W 68:988-9 N 18 '16

Electric power distribution. See Electric distribution

Electric power plants. See Electric plants

Electric power transmission. See Electric transmission

Electric precipitation

Dust losses in copper smelting. L. D. Ricketts. Eng & Min J 102:396-7 Ag 26 '16
 Electrical precipitation of smoke and dust. H. P. Hill. il diags Elec W 67:1097-9 My 13 '16
 International smelter at Miami. R. W. Kerns. diags Eng & Min J 101:423 Mr 4 '16
 Recent progress in electrical smoke precipitation. F. G. Cottrell. biologi il diag Eng & Min J 101:385-92 F 26 '16
 Use of the Cottrell precipitator in recovering phosphoric acid; abstract. W. H. Ross, J. N. Carothers and A. R. Merz. Met & Chem Eng 15:380 O 1 '16

Electric propulsion of ships. See Ship propulsion, Electric

Electric protective apparatus

Automatic protective devices for direct-current systems. M. Rosebourne and F. A. Couse. diags Elec W 67:1371-2 Je 10 '16
 Confining transmission disturbances to their source. il Elec W 66:1333-4 D 11 '15
 Cradle and substitutes; application to crossing lines. diags Gen Elec R 19:241-2 Mr '16
 Design of high-pressure distribution systems. J. R. Beard. diags Inst E E J 54:125-41 Ja 1 '16; Discussion. 54:225-44, 291-5, 379-88, 431-8, 490-6 Ja 15-Ap 1 '16
 Devices for protecting armatures. R. H. Parsons. il Elec Ry J 47:1191-2 Je 24 '16
 Electrical protection of electrolytic oxygen and hydrogen generators. A. J. Acker. diag Elec W 68:871 O 28 '16
 Experience and recent developments in central station protective features. N. L. Pollard and J. T. Lawson. diags Am Inst E E Pro 35:879-99 Je '16; Same cond. Power 44:220-2 Ag 8 '16; Abstract. Elec W 68:628 S 23 '16; Discussion. Am Inst E E Pro 35:1395-1409 S '16
 Feeder protection by automatic current limitation. R. M. Howard. diag Elec Ry J 47:603 Mr 25 '16
 Induction relay for selective overload protection. il Elec Ry J 48:901 O 21 '16; Power 44:689-90 N 14 '16; Elec R & W Elec'n 69:778 O 28 '16; Elec W 68:777-8 O 14 '16
 Instantaneous circuit-opening reverse-phase relay. il Power 44:594 O 24 '16
 Oil-filled electrical apparatus. Coal Age 9:118 Ja 15 '16
 Phase failure and phase reversal relay. il diag Power 44:387-8 S 12 '16
 Protection against surges. Elec W 68:1109-10 D 2 '16
 Protection of feeder lines. F. Dubsky. diags Gen Elec R 19:896-7 O '16
 Protection of high-voltage distribution systems by isolating transformers. O. O. Rider. Am Inst E E Pro 35:857-9 Je '16
 Protection of telephone circuits used in electric power distribution. E. K. Shelton. il diag Gen Elec R 19:1126-33 D '16
 Report of committee on protective apparatus. Am Inst E E Pro 35:1533-7 O '16
 Restoration of service after a necessary interruption. F. E. Ricketts. diags Am Inst E E Pro 35:931-44 Je '16; Excerpts. Power 44:290 Ag 22 '16; Abstract (Relay arrangements for clearing short-circuits by interrupting generator field currents). Elec W 68:278-9 Ag 5 '16; Discussion. Am Inst E E Pro 35:1389-94 S '16
 Rex automatic cut-out hanger. il Elec W 66:1331 D 11 '15
 S & H oil immersed cut-out. il Met & Chem Eng 14:167 F 1 '16
 Scheme that prevents flashes in junction boxes. il diag Elec W 68:1008 N 18 '16
 Sectionalizing system with isolating transformers. il map Elec W 68:82-3 J1 8 '16
 Service protection on a quarter-phase five-wire star system. W. L. Smith. Elec R & W Elec'n 68:429-30 Mr 4 '16
 Theory of parallel grounded wires and production of high frequencies in transmission lines. E. E. F. Creighton. diags Am Inst E E Pro 35:945-88 Je '16; Excerpts. Elec W 68:429-30 Ag 26 '16; Discussion. Am Inst E E Pro 35:1509-13 O '16

Electric protective apparatus—Continued

Tungsten-lamp shunt valuable for preventing arcing at contacts. plan Elec W 66:1435 D 25 '15

See also Choke coils; Electric circuit breakers; Electric engineering safety devices and measures; Electric fuses; Electric switches; Lightning arresters; Relays

Electric pumps. See Pumping machinery, Electric

Electric radiators

Electrically operated vertical steel radiator. il Elec W 66:1332 D 11 '15
Portable electric radiator. il Elec W 68:873-4 O 28 '16
Selection of electric-radiator sizes. R. S. Hale. Elec W 68:720-1 O 7 '16

Electric railroads

American electric railway association 35th annual convention. diags Elec Ry J 48:802-50 O 14 '16
Electrical railways. H. M. Hobart. Engineer 120:606, 608, 628-9; 121:44-5, 68-9, 90-2, 105-8, 134-5, 149 D 24-31 '15, Ja 14-F 18 '16
Engineering development of the electric railway. F. J. Sprague. Elec Ry J 48:771-4 O 14 '16
Graphical solutions of electric railway problems. A. M. Buck. diags il U Eng Exp Sta Bul 90:1-33 '16; Abstract. Elec Ry J 48:281 Ag 12 '16
Problems of the electric railway industry. F. W. Doolittle. Elec Ry J 47:1035-9 Je 3 '16
See also Car houses; Cars; Cars (line); Electric lines; Electric locomotives; Electric motors, Railway; Electric railway mail service; Elevated railroads; Interurban railroads; Railroads—Electrification; Street cars; Street railroads; Subways; Third rails; Trackless trolley

Accidents

Railway accidents for 1915. Elec Ry J 47:210 Ja 29 '16

Accounting

Accounting co-operation desired. H. L. Wilson. Elec Ry J 48:1024 N 11 '16
Accounting for betterments and replacements. H. N. Balfour. Elec Ry J 47:770-1 Ap 22 '16
Accounting for rents. T. B. McRae. Elec Ry J 46:1260 D 25 '15
Accounting inconsistencies and fallacies. H. A. Dunn. Elec Ry J 48:775-7 O 14 '16
Accounting inconsistencies and fallacies. W. H. Forse, jr. Elec Ry J 48:937 O 28 '16
Accrued accounts. A. E. Dedrick. Elec Ry J 46:1169 D 11 '15
American electric railway accountants' association annual meeting, Oct. 9-12. Elec Ry J 48:814-20 O 14 '16
Classification of rent items. Elec Ry J 47:11-12 Ja 1 '16
Departmental expense statements. L. T. Hixson. Elec Ry J 47:1176-8 Je 24 '16
Depreciation and appreciation. W. H. Forse, jr. Elec Ry J 46:1169-70 D 11 '15
How to use sinking funds. W. H. Forse, jr. Elec Ry J 48:528-30 S 23 '16
I. C. C. issues accounting answers. Elec Ry J 48:1078-9 N 18 '16
Keeping mechanical department costs. F. A. Miller. Elec Ry J 48:312-14 Ag 19 '16
Plea for unification of accounting classifications. Elec Ry J 48:979 N 4 '16
Relation of accounting officer to other members of official family. R. R. Bruster. Elec Ry J 47:1136-9 Je 17 '16
Shop orders. B. H. Jacobs. Elec Ry J 46:1214 D 18 '15

Advertising

Advertising electric railway service in Buffalo. Elec Ry J 47:275 F 5 '16
How the Detroit United stimulates traffic. Elec Ry J 47:783 Ap 22 '16
Illinois traction system uses many forms of publicity. il Elec Ry J 48:711-16 O 7 '16
Traffic circulars. F. H. Greene. il map Elec Ry J 47:351-3 F 19 '16

Blockades

New Haven blockade of December 13. Ry Age 60:67-8 Ja 14 '16

Recent electrical tie-up on the Long Island. il map Ry Age 60:681-2 Mr 24 '16

Cars

See Cars; Cars (line); Cars, Steel; Electric motors, Railway; Electric railroads—Rolling stock; Motor cars (railroad); Street cars

Clearance

Clearance diagram for railway structures. Elec Ry J 47:658 Ap 8 '16

Coasting

Ampere-hour meters on the Annapolis short line. D. E. Crouse. Elec Ry J 47:413-14 F 26 '16
Car-operating efficiency. J. F. Layng. Elec Ry J 47:690-2 Ap 8 '16
Car operation efficiency. F. E. Wynne. Elec Ry J 47:173 Ja 22 '16
Car operation efficiency. H. S. Putnam. Elec Ry J 47:854-5 Ap 1 '16
Car operation efficiency. W. B. Potter. Elec Ry J 47:218 Ja 29 '16
Car operation efficiency: energy input method of determining motormen's efficiency. C. C. Chappelle. Elec Ry J 47:695-7 Ap 8 '16
Effectiveness of coasting recorders in reducing power consumption and operating costs. V. W. Berry. Elec Ry J 47:945-6 My 20 '16
Efficient car operation. W. Arthur. Elec Ry J 47:781 Ap 22 '16
Energy-input method of determining motormen's efficiencies. C. H. Koehler. Elec Ry J 47:367-8 F 19 '16
Fundamental principles of car operation efficiency. C. C. Chappelle. diags Elec Ry J 47:116-25 Ja 15 '16
Graphic coasting record at Boston. Elec Ry J 47:95 Ja 8 '16
Maintaining coasting recorders on the Long Island railroad. G. H. Blackwedel. diags Elec Ry J 48:983-4 N 4 '16
Maintenance costs of coasting recorders. Elec Ry J 47:172 Ja 22 '16
Maintenance of coasting recorders. J. S. Doyle. Elec Ry J 47:215-16 Ja 29 '16
Power saving in car operation. E. S. Gillette. Elec Ry J 47:732-3 Ap 15 '16
Third Avenue railway coasting contest. Elec Ry J 48:24 J1 1 '16

Construction

Approved construction for trolley line passing under steam railway bridge. diags Ry R 59:287 Ag 26 '16
Construction and operating details of Philadelphia electrification. G. Gibbs. Elec Ry J 47:203-5 Ja 29 '16
Effects of electrolysis on engineering structures. A. F. Ganz. bibliog Stevens Ind 32:316-47 O 15 '16
Electrolysis and its mitigation. E. B. Rosa and B. McCollum. il diags U S Bur Stand Tech Pa 52:1-143 '15; Excerpts. Elec W 67:273-4 Ja 29 '16
Overhead construction on the Twin City lines. J. C. Vincent. diags Elec Ry J 47:222-3 Ja 29 '16
Special studies in electrolysis mitigation; a preliminary report on electrolysis mitigation in Elyria, Ohio, with recommendations for mitigation. B. McCollum and K. H. Logan. maps U S Bur Stand Tech Pa 55:1-49 '16
Special studies in electrolysis mitigation; a report on conditions in Springfield, Ohio, with insulated feeder system installed. B. McCollum and G. H. Ahlborn. maps U S Bur Stand Tech Pa 54:1-64 '16

See also Electric railroads—Track; Electric railroads—Wiring; Foles; Railroads—Electrification; Street railroads—Track

Control

Adjustment of drum controller fingers. W. J. Overman. diags Elec Ry J 47:276 F 5 '16
Control equipment of new Toledo cars. diags Elec Ry J 48:738 O 7 '16
Control equipment, with regenerative electric braking feature, on the locomotives of the Chicago, Milwaukee & St. Paul railway. R. Stearns. il diags Gen Elec R 19:942-51 N '16
Control systems and wiring for railway motors. il diags Elec Ry J 48:651-7 S 30 '16

Electric railroads—Control—Continued

Defects in multiple-unit control equipment. C. W. Squier, diag Elec Ry J 47:738-9 Ap 15 '16

Gage for the adjustment of controller fingers. R. H. Parsons, diags Elec Ry J 47:615-16 Mr 25 '16

High-voltage d-c. railway practise. C. Ren-saw, Am Inst E E Pro 35:437-50 Ap '16; Same cond. Elec Ry J 47:777-9 Ap 22 '16; Excerpts, Ry Age 60:381-2 Ap 21 '16; Discussion, Elec Ry J 47:779-80 Ap 22 '16; Ry Age 60:882-4 Ap 21 '16

Low-floor car control, il Elec Ry J 48:735-6 O 7 '16

Maintenance of controller handle bushings. E. D. Ransom, diags Elec Ry J 47:961-3 My 20 '16

Railway motor field control. D. C. Hershberger, il diags Elec Ry J 47:1178-81 Je 24 '16

Recent developments in Sprague general electric PC control. F. E. Case, il diag Gen Elec R 19:1015-19 N '16

Regenerative electric braking. J. J. Linebaugh, il Gen Elec R 19:967-72 N '16; Abstract, Eng N 76:902-3 N 9 '16

Cost of construction

Cost of electrification of Chicago terminals; summary of the items entering into the expenditure for new equipment. Ry Age 59:1125-8 D 17 '15

Estimated costs of Chicago terminal electrification, diags maps Elec Ry J 46:1159-67 D 11 '15

Inexpensive steel pole line. W. K. Palmer, diag Elec Ry J 47:702-3 Ap 8 '16

Tentative designs for overhead contact system in the electrification of Chicago railway terminals, diags Ry R 58:6-15 Ja 1 '16

Cost of maintenance and operation

Chicago electrification report discussed at the New York railroad club. Elec Ry J 47:604-5 Mr 25 '16

Economies in operating small cars. J. F. Layng, Gen Elec R 18:790-5 Ag '15; Same, Sci Am S 80:378-9 D 11 '15

Power for Massachusetts railways. Elec Ry J 47:201 Ja 29 '16

Substation operating costs for a New England electric-railway system. Elec W 67:883-4 Ap 15 '16

Unit for comparing track upkeep costs. Elec Ry J 48:499-50 S 16 '16

Crossings

Cobb shockless crossing now equipped for automatic operation, il diags Elec Ry J 48:733-4 O 7 '16

Employees

Co-operative education for employees. T: Elliott, Elec Ry J 47:1047 Je 3 '16

Co-operative education in electric railway work. A. M. Wilson, il Elec Ry J 47:724-7 Ap 15 '16

Medical examinations of employees. C: H. Lemon, Elec Ry J 48:494-5 S 16 '16

Physical examination for employees. F. D. Patterson, Elec Ry J 47:908-9 My 13 '16

Selection and training of trainmen. O. S. Lamb, Elec Ry J 47:900-1 My 13 '16

Social relations of electric railways; report to American electric railway association. J. D. Mortimer, H: C. Bradlee and E. W. Rice, jr. Elec Ry J 48:879-87 O 21 '16

See also Street railroads—Employees

Equipment and supplies

Cataloging equipment insures accuracy. L. M. Clark, diags Elec Ry J 47:739-40 Ap 15 '16

Combination sleet cutter and current collector. J. B. Blacklock, il Elec Ry J 48:729-30 O 7 '16

Cost of roadway machinery and tools. Elec Ry J 46:1227 D 18 '15

Current collection and utilization, il diags Elec Ry J 48:658-62 S 30 '16

Earl retriever, il Elec Ry J 47:573-4 Mr 18 '16

Equipment defects—controller connection boards, frames and covers. C. W. Squier, il Elec Ry J 47:221-2 Ja 29 '16

Friction in trolley bases, diag Elec Ry J 47:174-5 Ja 22 '16

Miller trolley shoe, il Elec Ry J 48:504-5 S 16 '16

Movable carriage for current collection. G. B. Tanis, diags Elec Ry J 48:939-40 O 28 '16

Overhead construction on the Twin City lines. J. C. Vincent, diags Elec Ry J 47:222-3 Ja 29 '16

Overhead construction—tools, specifications and tests. C: R. Harte, il plan Elec Ry J 47:534-8 Mr 18 '16

Portable trolley-wire reel holder. S. L. Foster, il Elec Ry J 47:220-1 Ja 29 '16

Reinforcing splices in catenary construction. M. E. Harding, diag Elec Ry J 48:684 S 30 '16

Relations between electric railway men and manufacturers. C. S. Hawley, Elec Ry J 47:202 Ja 29 '16

Simplified trolley catcher, il Elec Ry J 46:1225-6 D 18 '15

Trolley frog with renewable switch pan, il Elec Ry J 47:374 F 19 '16

Trolley shoe substitute for trolley wheel, il diag Elec Ry J 47:829 Ap 29 '16

1200-volt d-c. equipment for the Pacific electric railway, San Bernardino division. W. D. Bearce, il map Gen Elec R 19:706-11 Ag '16

Wood-strain insulators for Brooklyn, diag Elec Ry J 47:224 Ja 29 '16

See also Cars; Electric motors, Railway; Electric railroads—Records; Street cars; Trolley wire

Fares

Bay State company says last word. Elec Ry J 48:189-90 Jl 29 '16

Copper zone system of the Shore Line electric railway. R. W. Perkins, Elec Ry J 47:1039 Je 3 '16

Fare zones adjusted in Maine, map Elec Ry J 48:180-2 Jl 29 '16

Problems of the electric railway industry. F. W. Doolittle, Elec Ry J 47:1037-8 Je 3 '16

Seven-cent fare unit authorized. Elec Ry J 48:851 O 14 '16

Six-cent fare authorized by New Hampshire public service commission. Elec Ry J 48:1038-9 N 11 '16

United traction co., Albany, N. Y. denied fare increase. Elec Ry J 48:62-3 Jl 8 '16

See also Street railroads—Fares

Finance

Annual report of the Southern Pacific company—affiliated electric lines. Elec Ry J 47:231-2 Ja 29 '16

Business is improving. Elec Ry J 47:10-11 Ja 1 '16

Competition with other investments. O. B. Wilcox, Elec Ry J 47:260-3 F 5 '16

Current tendencies in the railway business. T: Conway, jr. Elec Ry J 48:10-12 Jl 1 '16

Electric railway earnings in New York. Elec Ry J 47:309-10 F 12 '16

Electric railway financing. Elec Ry J 47:835-6 Ap 29 '16

Improvement; will it pay? G. L. Burr, Elec Ry J 47:1047-8 Je 3 '16

Interurban electric railway finances. F. W. Doolittle, Elec Ry J 48:937 O 28 '16

Interurban future never brighter. A. J. Boardman, Elec Ry J 48:725-6 O 7 '16

New York state bond figures. Elec Ry J 47:407 F 26 '16

Present and future development of interurban railways. F. W. Doolittle, Elec Ry J 48:392-5 S 2 '16

Railway conditions in California. P. Shoup, Elec Ry J 46:1171-2 D 11 '15

Rate of return on railway capital. J. D. Mortimer, Elec Ry J 47:253-4 F 5 '16

Receiverships and foreclosure sales. Elec Ry J 47:37-8 Ja 1 '16

Report on Bay State street railway. B. J. Arnold, Elec Ry J 48:13-15 Jl 1 '16

Return on Massachusetts investment. D. J. McGrath, Elec Ry J 47:256-9 F 5 '16

Return on railway investment. Elec Ry J 47:494-5 Mr 11 '16

See also Electric railroads—Accounting; Electric railroads—Cost of maintenance and operation; Street railroads—Finance

Electric railroads—Continued**Freight**

- Developing carload freight traffic on Illinois traction system, il maps Elec Ry J 48:48-57 J1 8 '16
- Electric railway operating under steam road conditions, A. Swartz, il map Elec Ry J 48: 1055-7 N 18 '16
- Features of freight operation on the Lewiston, Augusta & Waterville street railway, F. E. Wood, Elec Ry J 47:1190 Je 24 '16
- Freight and express service and mail service rates, J. E. Wayne, Elec Ry J 47:956-7 My 20 '16
- How the Lewiston, Augusta & Waterville street railway is building up profitable freight traffic, F. E. Wood, il diags plans map Elec Ry J 47:486-90 Mr 11 '16
- Interurban freight line in the farthest North-east; Aroostook Valley railroad, il Elec Ry J 48:1006-9 N 11 '16

Law

- Electric railway legal decisions, Elec Ry J 46:196-8, 1134-5 J1 31, D 4 '15

Maintenance and repair

- Economical maintenance of city and interurban cars, F. J. Bennett, Elec Ry J 47:992-3 My 27 '16
- Electric car maintenance, J. F. Layng, Elec Ry J 46:1251-2 D 25 '15
- Electrical repair shop methods as applied to platform controller maintenance, E. D. Ransom, diags Elec Ry J 47:701-2 Ap 8 '16
- Inspection and maintenance, J. Sutherland, Elec Ry J 47:901-2 My 13 '16
- Maintenance on the Detroit tunnel electric zone, il diags map Elec Ry J 47:523-33 Mr 18 '16
- Modern shop methods, P. V. See, Elec Ry J 47:405 F 26 '16
- Overhead construction—tools, specifications and tests, C. R. Harte, il plan Elec Ry J 47:534-8 Mr 18 '16
- Overhead line maintenance trucks of the Third Avenue system, J. D. Kent, il diags Elec Ry J 48:90-6 J1 15 '16
- Portable motor-driven reeling machine, S. L. Foster, il Elec Ry J 48:192-3 J1 29 '16
- Reducing maintenance costs on a single-phase railway, il Elec Ry J 46:1108-12 D 4 '15
- Unit for comparing track upkeep costs, Elec Ry J 48:499-500 S 16 '16

See also Cars—Repair; Electric railroads—Cost of maintenance and operation; Electric railroads—Equipment and supplies; Electric railroads—Shops; Electric railroads—Signals; Electric railroads—Track

Management

- American electric railway transportation and traffic association annual meeting, Elec Ry J 48:837-46 O 14 '16
- Car operation efficiency, F. E. Wynne, Elec Ry J 47:173 Ja 22 '16
- Detroit river tunnel operation, il Elec Ry J 47:850-3 My 5 '16
- Developing interurban traffic, J. P. Griffin, Elec Ry J 47:993-6 My 27 '16
- Efficiency in car operation, J. F. Layng, Gen Elec R 19:758-63 S 16 '16
- Efficiency through conservation of time in interurban traffic, E. C. Spring, Elec Ry J 46: 1209-10 D 18 '15
- Electric railway and the automobile, E. Gonzenbach, Elec Ry J 47:75-6 Ja 8 '16
- Electric railway operating under steam road conditions, A. Swartz, il map Elec Ry J 48: 1055-7 N 18 '16
- Engineering efficiency in railway operation, J. C. Thirlwall, Gen Elec R 19:1038-40 N '16
- Fundamental principles of car operation efficiency, C. C. Chappelle, diags Elec Ry J 47: 116-25 Ja 15 '16
- Fundamentals of power saving, W: Arthur, Elec Ry J 48:397-9 S 2 '16
- Holding company traveling experts; organization and work of, H. L. Doherty & co. Elec Ry J 48:491-2 S 16 '16
- Making a freight agent of the employee, E. H. Maggard, Elec Ry J 47:1079 Je 10 '16
- Modern car efficiency, J. F. Layng, Gen Elec R 19:1029-33 N '16

- Operation of the P. R. R. Philadelphia-Paoli electrification, F. G. Grimshaw, il Elec Ry J 47:680-4 Ap 8 '16
- Parlor cars to stimulate traffic, il map Elec Ry J 47:392-4 F 26 '16
- Selling energy along interurban railways, il Elec Ry J 48:320-5 O 28 '16
- Traffic development on the Scranton & Binghamton railroad, il Elec Ry J 47:938-42 My 20 '16

See also Electric railroads—Coasting; Electric railroads—Records; Electric railroads—Shops; Street railroads—Management; Watch inspection

Meters

- Ampere-hour meters on the Annapolis short line, D. E. Crouse, Elec Ry J 47:413-14 F 26 '16

Motors

See Electric motors, Railway

Power

- Additions to Rhode Island power plant, il diag plan Elec Ry J 47:300-3 F 12 '16
- Building up a big power load on an electric railway, il map Elec Ry J 48:344-7 Ag 26 '16
- Car-operating efficiency, J. F. Layng, Elec Ry J 47:690-2 Ap 8 '16
- Car operation efficiency: energy input method of determining motormen's efficiency, C. C. Chappelle, Elec Ry J 47:695-7 Ap 8 '16
- Changes in the power station, Elec Ry J 47:5 Ja 1 '16
- Considerations in railway power distribution, F. H. Shepard, Elec Ry J 47:29-30 Ja 1 '16
- Economy of power consumption in car operation, G. T. Seely, Elec Ry J 47:688-9 Ap 8 '16
- Efficient car operation, W: Arthur, Elec Ry J 47:781 Ap 22 '16
- Electric service problems and possibilities, P: Junkersfeld, Eng Soc W Pa 32:83-6 Mr '16; Excerpt, Elec Ry J 47:1034 Je 3 '16
- Electrification of transportation lines, N. W. Storer, Elec Ry J 47:168 Ja 22 '16
- 5,000-volt, direct current electric railway, I. B. Smith, il diag Sci Am S 80:373 D 11 '15
- Fundamentals of power saving, W: Arthur, Elec Ry J 48:397-9 S 2 '16
- High voltage direct current railway installations in the United States and Canada; tabulation, Gen Elec R 19:1012a N '16
- High-voltage d-c. railway practise, C. Renshaw, Am Inst E E Pro 35:437-50 Ap '16; Same cond. Elec Ry J 47:777-9 Ap 22 '16; Excerpts, Ry Age 60:881-2 Ap 21 '16; Discussion, Elec Ry J 47:779-80 Ap 22 '16; Ry Age 60:882-4 Ap 21 '16; Discussion, Am Inst E E Pro 35:1307-37 Ag '16
- Illinois electric railways association discusses power economics, Elec Ry J 47:685-8 Ap 8 '16
- Large-capacity units for Boston Elevated railway, Elec Ry J 47:463-4 Mr 4 '16
- Manchester to Bury electrification, il diags plans Engineer 121:125-8 F 11 '16
- Montana power company and its part in the electrification of railways, J: D. Ryan, il map Gen Elec R 19:915-22 N '16
- Power costs on street railways, Power 43:213-14 F 15 '16
- Power developments for urban transportation, C. W. Wilder, il Eng M 51:260-71 My '16
- Power for Massachusetts railways, Elec Ry J 47:201 Ja 29 '16
- Power generation for electric railways, H: G. Stott, Elec Ry J 47:1170-3 Je 24 '16
- Power generation; report of committee of American electric railway engineering association, Elec Ry J 48:828-30 O 14 '16
- Power requirements in the electrification of Chicago railroads, Ry R 53:197-201 F 5 '16
- Progress of high voltage direct current railways, G. H. Hill, Gen Elec R 19:1012-14 N '16
- Purchased power for the New Haven, il diags plan Elec Ry J 46:1200-4 D 18 '15
- Railroads will demand central station energy, J: F. Wallace, il Elec W 68:118-20 J1 15 '16
- Saving power with watt-hour meters, F. V. Skelley, il Elec Ry J 47:813-15 Ap 29 '16
- Supply of single-phase loads from central stations, P. Torchio, diags Am Inst E E Pro 35:1421-9 O '16

Electric railroads—Power—Continued

1200 versus 600-volt trolley systems. S. B. Fortenbaugh. Elec Ry J 46:1172-3 D 11 '15
 United railroads of St. Louis power situation. Elec Ry J 48:531-2 S 23 '16

Use of ampere-hour meter and results obtained by Chicago & Joliet electric railway. J. B. Tinnon. Elec Ry J 47:659-90 Ap 8 '16
 Use of continuous current for terminal and trunk-line electrification. N. W. Storer. diags Inst E E J 54:521-34; Discussion. 535-49, 564-7 My 1-Je 1 '16

See also Electric railroads—Coasting; Electric railroads—Control; Electric railroads—Substations

Power plants

See Electric plants (central stations)

Public relations

Attitude of the public toward electric railways. C. E. Eveleth. Gen Elec R 19:139-41 F '16

Public and electric railways. O. B. Willcox. Gen Elec R 19:308-12 Ap '16

Public relations in theory and practice. Elec Ry J 47:9-10 Ja 1 '16

Report of committee of American electric railway association on public relations. Elec Ry J 48:808-9 O 14 '16

Symposium on company publications. Elec Ry J 48:787-93 O 14 '16

Ten commandments for improving public relations. F. R. Coates. Elec Ry J 48:867 O 21 '16

What the electric railway wants. C. L. Henry. Elec Ry J 47:244-6 F 5 '16

Records

Cataloging equipment insures accuracy. L. M. Clark. diags Elec Ry J 47:739-40 Ap 15 '16

Complete records help to offset the rising cost of labor and material. W. H. Boyce. Elec Ry J 48:478-80 S 16 '16

Graphic coasting record at Boston. Elec Ry J 47:95 Ja 8 '16

Maintenance costs of coasting recorders. Elec Ry J 47:172 Ja 22 '16

Maintenance of coasting recorders. J. S. Doyle. Elec Ry J 47:215-16 Ja 29 '16

Substation records increase efficiency on the Illinois traction system. J. Leisenring and H. W. Coe. map Elec Ry J 48:352-6 Ag 26 '16

See also Electric railroads—Meters

Rolling stock

Electric rolling stock ordered in 1915. Elec Ry J 47:34-6 Ja 1 '16

Manchester to Bury electrification. il diags plan (supp) Engineer 121:167-9, 176 F 25 '16

See also Cars; Electric railroads—Maintenance and repair; Street cars

Safety devices and measures

Accident reduction in Chicago. il Elec Ry J 47:398-400 F 26 '16

Boston Elevated reports on safety. diags Elec Ry J 47:652-3 Ap 1 '16

Brakes, couplers and other safety devices. il diags Elec Ry J 48:636-42 S 30 '16

Car stop for highway and grade crossings. il diags Elec Ry J 48:1121 N 25 '16

Equipment of the safety car. diags Elec Ry J 48:405-6 S 2 '16

Fifth National safety congress, electric railway section. Elec Ry J 48:930-4 O 28 '16

National safety council and its electric railway section. H. A. Bullock. Elec Ry J 46:1257-8 D 25 '15

Operation of the P. R. R. Philadelphia-Paoli electrification. F. G. Grimshaw. il Elec Ry J 47:680-4 Ap 8 '16

Reducing accidents on the Union Traction system, Indiana. il plan Elec Ry J 47:315-16 F 12 '16

Safety in Brooklyn rolling stock. il Elec Ry J 47:1148-9 Je 17 '16

See also Electric railroads—Signals; Street railroads—Safety devices and measures

Shops

Bay State carhouse at Lowell, Mass. il diag Elec Ry J 47:198-201 Ja 29 '16

Cleveland completes two more terminals. il plans Elec Ry J 48:132-5 J1 22 '16

Cost of miscellaneous shop equipment. Elec Ry J 46:1173 D 11 '15

Lamp trolley for the inspection shop. A. O. Reinke. diags Elec Ry J 47:867-8 My 6 '16

Planning and efficiency system in Portland (Ore.) shops; adaptation of the Taylor system to electric railway repair shops. F. P. Maize. il Elec Ry J 47:539-49 Mr 18 '16; Excerpt. Eng M 51:273-5 My '16

Public service repair shops. R. H. Harrison. Elec Ry J 47:272 F 5 '16

Repair-shop applications of oxy-acetylene. il Elec Ry J 47:550-5 Mr 18 '16

Safety appliances in car shops. H. P. Megargee. il Elec Ry J 46:1252-4 D 25 '15

Shop grounds of Portland railway co. beautified by roses. F. P. Maize. il Elec Ry J 48:490 S 16 '16

Testing corner in Atlantic City shops. G. F. Faber. il Elec Ry J 46:24-5 J1 3 '15

Trolley lighting scheme for the paint shop. G. R. W. Roberts. diags Elec Ry J 47:410 F 26 '16

Vestibuling 560 semi-convertible cars. il diag Elec Ry J 48:302-6 Ag 19 '16

See also Car houses

Signals

Contact signals for Jamestown (N. Y.) lines. il Elec Ry J 47:741 Ap 15 '16

Contactor signal using standard high-speed aspects. il diags Elec Ry J 48:686-9 S 30 '16

Contactor signals operate at low voltage. il Elec Ry J 46:1181-2 D 11 '15

Economies with New Bedford & Onset signals. Elec Ry J 46:1266-7 D 25 '15

Line crews maintain T. H. I. & E. light signals. A. Schlesinger. Elec Ry J 47:45-7 Ja 1 '16

New York Elevated road's attitude on train stops. diags plans Ry R 58:860-2 Je 17 '16

Report of committee of American electric railway association. diags Elec Ry J 48:826-7 O 14 '16

Signaling in the public service terminal. J. W. Brown. il Elec Ry J 47:890-4 My 13 '16

Signals on the Scranton & Binghamton railway system. il Elec Ry J 48:388-91 S 2 '16

Telephone dispatching eliminated by signals at Portland, Me. il Elec Ry J 46:1224-5 D 18 '15

See also Interlocking plants

Snow protection and removal

Emergency snow-fighting equipment. W. G. Murrin. il diags Elec Ry J 47:658-9 Ap 1 '16

Independently mounted snow plow. il diag Elec Ry J 47:94 Ja 8 '16

Standards

List of the standards and recommendations of the American electric railway engineering association. Elec Ry J 47:566 Mr 18 '16

Standard weights for electric cars. W. J. Clardy. Elec Ry J 48:283-4 Ag 12 '16

Statistics

Electric railway statistics. Elec Ry J 47:159 Ja 22 '16

Electric railway track built in 1915. Elec Ry J 47:32-3 Ja 1 '16

Five years' growth of freight and passenger receipts. Elec Ry J 47:347 F 19 '16

Growth of electric railways. Elec Ry J 47:225 Ja 29 '16

High voltage direct current railway installations in the United States and Canada; tabulation. Gen Elec R 19:1012a N '16

Relative growth of freight and passenger business. Elec Ry J 47:87 Ja 8 '16

Work of the statistician. W. E. Jones. Elec Ry J 48:777-9 O 14 '16

Substations

Arrangement for serving 1500-volt railway. il plans Elec W 68:1095-6 D 2 '16

Automatic substation. Elec Ry J 47:912-13 My 13 '16

Electric railroads—Substations—Continued

Automatically controlled substations with particular reference to their application to interurban electric railways. E. W. Allen and E. Taylor, il plan Am Inst E E Pro 34:2159-73 S '15; Abstract. Elec Ry J 46:583-6 S 18 '15; Discussion. Am Inst E E Pro 35:217-20 F '16

Bay State substations. Elec Ry J 47:164-5 Ja 22 '16

Construction costs for a 10,000-kw. steam plant, Quincy Point, Mass. Elec W 66:1314 D 11 '15

Description of the 1500- and 2000-kw., 3000-volt D-C. motor-generator sets of the Chicago, Milwaukee & St. Paul railway. F. C. Helms and C. M. Fulk, il diag Gen Elec R 19:980-5 N '16

Electrification on the Chicago, Milwaukee, and St. Paul railway. il Engineer 120:454-5 N 12 '15

Feeding heavy single-phase load from three-phase units. il diag Elec W 66:1300-2 D 11 '15

Give the operator a job. C. M. Davis, il diags Gen Elec R 19:1020-8 N '16

Keeping the substation attendant busy. il Elec Ry J 48:322-3 Ag 19 '16

Manchester to Bury electrification. il diags plans Engineer 121:101-3 F 4 '16

Purchased power for the New Haven. il diags plan Elec Ry J 46:1200-4 D 18 '15

Recent railway substation. G. C. Hecker, il diag plan Elec Ry J 47:1093-5, 1146-8 Je 10-17 '16

Standardization of railway substations. H. J. Kennedy, Elec Ry J 46:1126-7 D 4 '15

Substation records increase efficiency on the Illinois traction system. J. Leisenring and H. W. Coe, map Elec Ry J 48:352-6 Ag 26 '16

Substations of the Chicago, Milwaukee & St. Paul railway electrification. A. Smith, il diags Gen Elec R 19:973-9 N '16

West Farms relay system for clearing grounds at railway substation. plan Elec W 66:1374 D 18 '15

West Farms substation of New Haven railroad. il diags Elec W 66:1365-7 D 18 '15

See also Electric distribution; Electric plants (substations)

Switches, frogs, etc.

Electric track switch practice. il Elec Ry J 48:503-4 S 16 '16

Telephone systems

Remodeling a railway telephone system. il diags Elec Ry J 47:92-3 Ja 8 '16

Terminals

Electric roads to serve large market. il Elec Ry J 47:782-3 Ap 22 '16

See also Street railroads—Terminals

Track

Data on electric railway track leakage. G. H. Ahlborn, diags U S Bur Stand Tech Pa 75:1-22 '16; Abstract. J Fr Inst 182:255-7 Ag '16

Ladder track design. N. L. Sanow, Elec Ry J 47:827-8 Ap 29 '16

Leakage of currents from electric railways. B. McCollum and K. H. Logan, diags U S Bur Stand Tech Pa 63:1-31 '16

Modern practice in the construction and maintenance of rail joints and bonds in electric railways. E. R. Shepard, bibliog il U S Bur Stand Tech Pa 62:1-123 '16

New standard types of roadbed for subways, tunnels and elevated roads, New York city. R. H. M. Canfield, diags Ry R 59:157-60 Jl 29 '16

Unballasted track gives 50 per cent lower maintenance cost. W. S. Twining, il diag Elec Ry J 48:481-3 S 16 '16; Abstract. Eng Rec 74:471 O 14 '16

Unit for comparing track upkeep costs. Elec Ry J 48:499-500 S 16 '16

See also Rails; Street railroads—Track

Valuation

Bay State street railway valuation. Elec Ry J 46:1121-3 D 4 '15

Bay State substations. Elec Ry J 47:164-5 Ja 22 '16

See also Street railroads—Valuation

Wiring

Flexible conduit in car wiring. diags Elec Ry J 47:791 Ap 22 '16

Installing auxiliary contact wire in catenary construction. R. C. Thurston. Elec Ry J 47:466 Mr 4 '16

Locating and wiring crossovers. G. H. McKelway. Elec Ry J 47:324 F 12 '16

Prevention of drawbridge accidents. G. B. Tanis, diag Elec Ry J 47:1007 My 27 '16

Return feeder system of the Interborough. I. W. Gross. Elec Ry J 47:160-1 Ja 22 '16

Three-wire system in Los Angeles. S. H. Anderson, diags Elec Ry J 47:395-7 F 26 '16

Yards

Cleveland completes two more terminals. il plans Elec Ry J 48:132-5 Jl 22 '16

Austria

Results on Vienna railway during war. Elec Ry J 47:1197 Je 24 '16

California

Railway conditions in California. P. Shoup. Elec Ry J 46:1171-2 D 11 '15

Canada

Lake Erie & Northern railway. il map Elec Ry J 47:986-8 My 27 '16

Montreal & Southern Counties railway. il Elec Ry J 48:395-6 S 2 '16

Toronto rapid transit report presented. Elec Ry J 46:1183 D 11 '15

War checks the growth of Calgary street railway. il plan map Elec Ry J 48:962-4 N 4 '16

Germany

Traffic in Frankfurt-on-Main. Elec Ry J 48:263 Ag 12 '16

Iowa

Building up a big power load on an electric railway. il map Elec Ry J 48:344-7 Ag 26 '16

Maine

Interurban freight line in the farthest Northeast; Aroostook Valley railroad. il Elec Ry J 48:1006-9 N 11 '16

New York

Electric railway earnings in New York. Elec Ry J 47:309-10 F 12 '16

Report of committee of New York electric railway association on movement of troops. Elec Ry J 48:20-3 Jl 1 '16

Russia

Electric railway on the ice. il Elec Ry J 47:643 Ap 1 '16

Spain

Electric interurbans in Spain. Elec Ry J 47:372 F 19 '16

Switzerland

Leuk-Leukerbad railway; a scenic line in the Bernese Alps. il Sci Am S 80:408 D 25 '15

United States

Electric traction in 1915. A. M. Buck. Elec R & W Elec'n 68:7-8 Ja 1 '16

Utah

Interurban railway system in Utah; the Ogden Logan & Idaho Ry. il map Ry R 57:764-6 D 11 '15

Salt Lake & Utah railroad extension. il Elec Ry J 48:143 Jl 22 '16

Electric railroads in war. See Railroads in war

Electric railway accountants' association, Central. See Central electric railway accountants' association

Electric railway association, American. See American electric railway association

Electric railway association, Central. See Central electric railway association

Electric railway mail service

Report of committee on compensation for the carrying of United States mail. Elec Ry J 48:807-9 O 14 '16

Electric railway mail service—Continued

Slight increase in mail pay. Elec Ry J 47:131 Ja 15 '16

Electric railway motors. See Electric motors, Railway

Electric railways association, Illinois. See Illinois electric railways association

Electric rates. See Electric power—Rates

Electric reactance. See Reactance

Electric resistance

Analysis of tank resistance in electrolytic refining. L. Addicks. diags Met & Chem Eng 15:566-71 N 15 '16; Excerpts. Elec W 68:1110-11 D 2 '16

Calculation of skin effect in strap conductors. H. B. Dwight. Elec W 67:593-4 Mr 11 '16

Calculations; inductance, capacity, and resistance in series and in parallel. Gen Elec R 19:1135-6 D '16

Construction of primary mercurial resistance standards. F. A. Wolff, M. P. Shoemaker, and C. A. Briggs. il diags U S Bur Stand Bul 12:375-464 F 3 '16

Earth resistance and its relation to electrolysis of underground structures. B. McCollum and K. H. Logan. diags U S Bur Stand Tech Pa 26:1-48 '15

Electrical resistance of some heat-treated copper-zinc-nickel alloys. F. C. Thompson. Inst E E J 54:222-4 Ja 15 '16

Examination of the electrical properties of fibrox. E. F. Northrup. Met & Chem Eng 15:409-10 O 1 '16

Experimental researches on skin effect in conductors. A. E. Kennelly, F. A. Laws and P. H. Pierce. bibliog il diags Am Inst E E Pro 34:1749-1814 Ag '15; Discussion. 35:609-11 My '16

Grid resistor tests and standardization found important. Elec Ry J 47:595-6, 1048 Mr 11, Je 3 '16

Losses in cables armored with steel tape. W. I. Middleton and E. W. Davis. Elec W 68:1003-6 N 18 '16

Measurements of very high insulation resistance in cables; abstract. J. Fischer-Hinnen. Elec W 68:632 S 23 '16

Method for measuring resistivity of molten materials; results for certain alloys. E. F. Northrup and R. G. Sherwood. il diags J Fr Inst 182:477-509 O '16

Method of measuring earth resistivity. F. Wenner. diags U S Bur Stand Bul 12:469-78 F 3 '16

Nickel-chromium patent situation. Elec W 67:80-1 Ja 8 '16

Notes from the Palmer physical laboratory. E. F. Northrup. Met & Chem Eng 15:193-5 Ag 15 '16

Resistance measurements of the human body. D. H. Moore. diags Gen Elec R 19:713-14 Ag '16

Resistance of radiotelegraphic antennas. L. W. Austin. U S Bur Stand Bul 12:465-8 F 3 '16

Steel conductor rails; British steel conductor rail practice and standard methods of testing. C. H. Ridsdale. diags Elec W 68:187-8 Jl 22 '16

Temperature rule-of-thumb that works only one way. E. C. Parham. Elec W 67:216 Ja 22 '16

Testing for grounds and insulation resistance. L. H. Henderson. diags Elec R & W Elec'n 67:1020-3 D 4 '15

Ward Leonard resistance units for signal, telephone and telegraph circuits. il Elec R & W Elec'n 68:650 Ap 8 '16

See also Electric circuit breakers; Electric conductivity; Electric measurement; Electric testing; Insulation; Reactors; Rheostats; Skin effect

Electric rheostats. See Rheostats

Electric safety lamps. See Safety lamps, Electric

Electric service, Rural

Cost of rural lines and revenue therefrom. Elec W 68:708-10 O 7 '16

Cost of serving rural customers at Kokomo, Indiana. P. H. Palmer. Elec R & W Elec'n 68:757-8 Ap 29 '16

High cost of serving the farm customer. P. H. Palmer. Elec W 67:1047 My 6 '16

Rural service from Iowa transmission lines. Elec W 68:221-2 Jl 29 '16

See also Electricity on the farm

Electric service companies

Central-station activities in 1915. Elec R & W Elec'n 68:10-11 Ja 1 '16

Concentration of control of public utilities; government report to Senate. Elec W 67:302-9, 362-4 F 5-12 '16

Consolidation plans of New England power companies. Elec R & W Elec'n 68:751 Ap 29 '16

Merger of Idaho hydroelectric companies. il Elec W 68:358-60 Ag 19 '16

N. E. L. A. 39th annual convention, Chicago. Power 43:820-2 Je 6 '16

N. E. L. A. 39th annual convention, Chicago; papers and discussions. Elec W 67:1212-39 My 27 '16

N. E. L. A. 39th annual convention, with abstracts of papers and reports. Elec R & W Elec'n 68:956-77 My 27 '16

Pulling together for more business. Elec W 67:1042-3 My 6 '16

Securing holiday business by co-operation. M. V. Rutherford. Elec R & W Elec'n 69:818-19 N 4 '16

Value of residential business to the central station; abstracts. G. A. Lowther. Elec R & W Elec'n 68:589-90 Ap 1 '16; Elec W 67:888 Ap 15 '16

See also Electric lines; Electric plants (central stations); Electric power—Rates; Ice—Manufacture; also Commonwealth Edison company

Accounting

N. E. L. A. 39th annual convention; abstracts of papers and reports. Elec R & W Elec'n 68:981 My 27 '16; Elec W 67:1234 My 27 '16

Problem of central station accounting. H. C. Miller. J Account 22:187-9 S '16

Advertising

Advertising a community to win power prospects. il map Elec W 67:89-91 Ja 8 '16

Advertising appropriation of the central station. J. C. McQuiston. Elec W 68:1050 N 25 '16

Advertising practice of central stations. Elec R & W Elec'n 69:330-1 Ag 19 '16

Backing up the daily advertising copy. C. H. Seaver. il Elec R & W Elec'n 68:805-7 My 6 '16

Beyond the wire-your-home month campaign. Elec W 67:701-3, 754-7 Mr 25-Apr 1 '16

Boston Edison company sells 211 electric ranges in four months. Elec R & W Elec'n 68:237 F 5 '16

Central-station bulletin in a city of 10,000 people. Elec W 67:440 F 19 '16

Central-station house-wiring campaigns. Elec R & W Elec'n 68:415-17 Mr 4 '16

Co-operating with real estate agents brings results in St. Louis. Elec R & W Elec'n 68:286 F 12 '16

Details of a successful fan campaign. J. H. Mosley. il Elec R & W Elec'n 69:244-6 Ag 5 '16

Effective advertising at Springfield, Mass. Elec R & W Elec'n 68:235 F 5 '16

Effective plan for interesting the children in electricity. il Elec R & W Elec'n 67:1010 D 4 '15

Eight western power companies conduct joint exhibit at Salem, Ore. il Elec W 67:200 Ja 22 '16

Electric company building sets example of outline lighting for St. Joseph (Mo.) merchants. il Elec W 66:1266 D 4 '15

Electrical-page idea to dress a folder. il Elec W 67:157 Ja 15 '16

Enlisting the people's aid in a house-wiring campaign. A. L. Scott. il Elec W 67:325-7 F 5 '16

Future of electrical advertising. W. A. Wadsworth. Elec R & W Elec'n 67:1010-11 D 4 '15

House-wiring window display elicits 900 inquiries in six days. il Elec R & W Elec'n 67:1103 D 18 '15

In the midst of the "wire-your-home" campaign. Elec W 67:750 Ap 1 '16

Individuality in dealer advertising. Elec W 67:50 Ja 1 '16

Electric service companies—Advertising—Cont.

- Letter that produces the business. Elec R & W Elec'n 68:195 Ja 29 '16
- Letter that sells washing machines. Elec W 66:1321 D 11 '15
- Local value of national popular advertising. R. B. Chester. Elec W 67:381-2 F 12 '16
- Marketing electricity. See weekly numbers of the Electrical world
- Methods for securing house-wiring business. F. H. School. Elec R & W Elec'n 68:921-3 My 20 '16
- National advertising for electric power. Elec R & W Elec'n 68:110 Ja 15 '16
- Newspaper advertising for central stations. C. H. Seaver. Elec R & W Elec'n 68:546-8 Mr 25 '16
- One year of house wiring in Topeka. Elec R & W Elec'n 68:1029-30 Je 3 '16
- Opening for Christmas business—an idea that can be used to advantage at any time of the year. il Elec W 66:1429 D 25 '15
- Personal element in advertising. C. H. Seaver. Elec R & W Elec'n 68:1153-4 Je 24 '16
- Pittsfield advertises its typical installations to wire more. Elec W 67:776 Ap 1 '16
- Postcards to cut down the direct advertising cost. Elec R & W Elec'n 68:636-7 Ap 8 '16
- Preparing the ground for intensive cultivation in merchandising. W. B. Parker. Elec R & W Elec'n 68:815, 863 My 6-13 '16
- Printed salesmanship for central stations. C. H. Seaver. Elec R & W Elec'n 68:370-3 F 26 '16
- Proof that Edison power pays—the customers' testimony. Elec W 67:271 Ja 29 '16
- Record-breaking campaign in Minneapolis. Elec R & W Elec'n 68:849-50 My 13 '16
- St. Louis company's customers reach 65,000 mark—rates are reduced. Elec R & W Elec'n 67:1145 D 25 '15
- Sales factors in a washing-machine campaign. il Elec R & W Elec'n 68:725-6 Ap 22 '16
- Securing power business by direct-by-mail advertising. Elec R & W Elec'n 69:286-7 Ag 12 '16
- Selling 1500 vacuum cleaners in six weeks. il Elec R & W Elec'n 68:1165-6 Je 24 '16
- Selling of electric ranges in a small town. A. S. Hall. il Elec W 67:986-7 Ap 29 '16
- Spectacular iron campaign in Dayton. il Elec R & W Elec'n 68:1027-8 Je 3 '16
- Taking advantage of current happenings. Elec R & W Elec'n 68:241 F 5 '16
- Timeliness in appliance advertising. Elec R & W Elec'n 68:204 Ja 29 '16
- Vacuum-cleaner campaign that boomed store sales. O. R. Hogue. Elec W 67:1171-2 My 20 '16
- Watt the wizzard conquers household drudgery at Baltimore. Elec W 66:1419 D 25 '15
- See also Electrical prosperity week; Electrical week

Employees

- Distribution of employees in departments of a central station. Elec W 68:866 O 28 '16

Finance

- Central station statistics. Elec W 68:714-15 O 7 '16
- Central stations prospering in 1916. Elec W 68:520-1 S 9 '16
- Enlisting the bank to finance house-wiring. Elec W 67:704 Mr 25 '16
- Hydroelectric operations in Massachusetts. Elec R & W Elec'n 69:846 N 11 '16
- Issuance of stock for purposes of consolidation. Elec W 68:266-8 Ag 5 '16
- Large increase in central station business. Elec W 67:1045-7 My 6 '16
- Los Angeles condemnation hearing. Elec W 67:133-4 Ja 15 '16
- Los Angeles condemnation suit. Elec W 66:1407-8 D 25 '15
- New York Edison rate case. Elec W 68:753 O 14 '16
- Operating results for small Indiana combined water, ice, and electric plant. C. E. Layton. Elec W 67:1364 Je 10 '16
- Reckoning with costs of superseded equipment. E. D. Dreyfus. Elec W 68:272-4 Ag 5 '16

- Refinancing of Philadelphia electric company. Elec W 68:213-14 Jl 29 '16
- Results of light and power operations; recent earnings. Elec W 68:275-6 Ag 5 '16
- Results of September central station operation. Elec W 68:1101-2 D 2 '16
- Selling stock locally. Elec Ry J 48:356-7 Ag 26 '16

See also Electric service companies—Valuation of property

Management

- Campaign plan that offered free electric units in exchange for gas arcs. Elec W 68:530 S 9 '16
- Central station power for railways; committee report. Elec Ry J 47:1001 My 27 '16
- Convenience of the customer; system of the Commonwealth Edison company, Chicago. il Elec W 68:15-20 Jl 1 '16
- Co-operative 14 months appliance campaign. Elec R & W Elec'n 68:152-3 Ja 22 '16
- Coupon purchase plan for lamp renewals. S. W. Borden. il Elec W 67:990-2 Ap 29 '16
- Dealer's house-to-house appliance campaign. R. Montgomery. Elec W 67:829-30 Ap 8 '16
- Effective color-tab system for light and power records. Elec R & W Elec'n 68:673-4 Ap 15 '16
- Electric service à la carte. Elec R & W Elec'n 67:1144 D 25 '15
- Electric service problems and possibilities. P. Junkersfeld. il diag Eng Soc W Pa 32:61-100; Discussion. 32:100-20 Mr '16
- Electric service to interconnected Illinois towns. il map Elec W 67:1146-53 My 20 '16
- Form of contract for the rental of wiring installations. Elec W 67:888 Ap 15 '16
- Free lamp renewal policy of Edison companies. Elec W 66:1303-4 D 11 '15
- Free service inspections and repairs for residence customers bring excellent results. Elec R & W Elec'n 69:681 O 14 '16
- Graphic analyses of managerial problems. E. D. Dreyfus. Elec W 68:710-12 O 7 '16
- Hire and maintenance of continuous-current motors. H. Joseph. Inst E E J 54:564-70 My 1 '16; Abstract. Elec W 67:1482-3 Je 24 '16; Discussion. Inst E E J 54:570-9 My 1 '16
- House and department conferences essential to successful merchandising. C. H. Minor. Elec R & W Elec'n 68:116 Ja 15 '16
- House-wiring survey and appliance sales campaign at Duluth, Minn. il Elec W 67:489-91 F 26 '16
- How can gas and electric companies under one management render the best light service? A. B. Spaulding and N. H. Potter. Illum Eng Soc 10:793-802; Discussion. 802-13 no 8 '15
- How Dayton cashed in on "wire your home" month. il Elec W 67:1310-11 Je 3 '16
- How to build electric-range business. J. B. Crawford. Elec W 67:1468-9 Je 24 '16
- Leasing motors on trial-service proposition at Brockton and Abington, Mass. Elec W 67:46-7 Ja 1 '16
- Making a commercial scout of every employee. J. G. Learned. Elec W 68:223-4 Jl 29 '16
- Merchandising electric appliances. D. R. Thomas. Elec R & W Elec'n 69:21-2 Jl 1 '16
- Minimizing cash deposits. T. Kelly. Elec W 68:230-1 Jl 29 '16
- 1,000 gas arcs replaced by electric lamps in two months. W. A. Wadsworth. Elec R & W Elec'n 69:371 Ag 26 '16
- Operation of a lamp-service department. L. A. Coleman. il Elec W 68:857-9 O 28 '16
- Operation of an Ohio interconnected system. il diag map Elec W 67:1294-9 Je 3 '16
- Organization of Boston company's operating bureau for turning prospects into customers. W. H. Atkins. Elec R & W Elec'n 68:106 Ja 15 '16
- Planning a power sales campaign. T. R. Hay. Elec R & W Elec'n 66:155-7 Ja 22 '16
- Poor service causes municipal ownership. G. Marston. Elec R & W Elec'n 69:806-7 N 4 '16
- Power of easy payment in appliance sales. E. E. Whitehorse. il Elec W 66:1413-15 D 25 '15
- Proposed dividend-type domestic service rate. W. W. Briggs. Elec W 68:850-3 O 28 '16

Electric service companies—Management—Cont.

- Reading gas and electric meters simultaneously effects a saving of \$200 per month. Elec R & W Elec'n 68:285 F 12 '16
- Service to lighting customers. G. B. Regar. Elec R & W Elec'n 68:328-9 F 19 '16
- Terms of Salem electric company's contract with large mill customer. Elec W 68:675-6 S 30 '16
- Value of the poor man's business. E. E. Whitehorne. il Elec W 67:201-3 Ja 22 '16
- Value of trial motor installations. Elec R & W Elec'n 69:471-2 S 9 '16
- When a woman manages. il Elec W 68:862-3 O 28 '16
- Winning friends and new business in a town of 4000. R. K. Johnston. Elec W 67:1369-70 Je 10 '16
- Work of the lighting service department of the Philadelphia electric company. G. B. Regar. Illum Eng Soc 11:891-4 no 8 '16

Offices

- Central station service building at Springfield, Mass. il Elec W 68:1091-2 D 2 '16
- Display-room arrangement in Maywood office of Public service company of northern Illinois. plan Elec W 68:863-4 O 28 '16
- Office for a small central station, Noblesville, Ind. J. T. Kester. il Elec W 66:1424 D 25 '15
- Planning the new central station office building, Huntington, Ind. il Elec W 68:1049-50 N 25 '16
- Small electric office. il diags Elec W 68:327-8 Ag 12 '16

Public relations

- Boston Edison company holds co-operative meetings with municipal officers and contractors. Elec R & W Elec'n 69:876-7 N 18 '16; Elec W 68:990 N 18 '16
- Co-operation. C. P. Steinmetz. Elec W 68:454-6 S 2 '16
- Efficiency in serving customers. J. M. Mohl. Elec R & W Elec'n 68:105 Ja 15 '16
- Employee and the customer as seen in the Woonsocket (R. I.) service code. Elec W 66:1263 D 4 '15
- Friendly power of the public press. E. E. Whitehorne. il Elec W 67:479-80 F 26 '16
- Killing complaints with courtesy. L. J. Wilhoite. Elec W 67:102-3 Ja 8 '16
- Public policy ideals bring commercial results. Elec W 67:1292-4 Je 3 '16
- Public utility situation. G. E. Tripp. Elec W 67:310-11 F 5 '16
- Selling securities to patrons. Elec Ry J 48:264-9 Ag 12 '16
- Shaping public opinion through local electrical influence. E. C. Bennett. Elec W 67:36 Ja 1 '16
- Taking the customer into partnership. E. E. Whitehorne. il Elec W 67:537-41 Mr 4 '16

Rates

- See Electric lighting—Rates; Electric power—Rates

Records

- Convenient method for filing apparatus costs and station records. Elec W 68:718 O 7 '16
- Data forms for underground conduit and cable record-pocketbook. R. A. Paine, jr. diag Elec W 68:227 Jl 29 '16
- Identification record for overhead primary circuits. R. A. Paine, jr. map Elec W 68:325 Ag 12 '16
- System of serially numbering customer's meters. W. H. Fellows. Elec W 67:1100 My 13 '16

Regulation

- Compelling utilities to serve the public. W. E. Mooney. Elec R & W Elec'n 68:283 F 12 '16
- Maine utility ordered to serve customers not on lines. Elec R & W Elec'n 69:835 N 11 '16
- New minimum bill for Chicago. Elec W 68:146 Jl 15 '16
- New York Edison rate case settled without valuation. Elec W 68:942-3 N 11 '16
- Newton gas and electric company. Newton, N. J. Elec R & W Elec'n 67:1068 D 11 '15
- Public service commission orders Brooklyn Edison electric rates reduced. Elec W 68:893-4 N 4 '16

- Standards for electric service. U S Bur Stand Circ 56:1-262 '16; Excerpts. Power 44:398-9 S 12 '16; Abstract. Elec Rty J 48:720 O 7 '16

Rural service

- See Electric service, Rural

Salesmen

- Curves that plot the performance and efficiency of the salesman. F. H. Hill. Elec W 68:327 Ag 12 '16
- High-school boys as electric appliance salesmen. J. S. Wise, jr. Elec W 66:1421-2 D 25 '15
- Power engineers versus power salesmen— which type of man gets the motor business? Elec W 66:1430 D 25 '15
- Power salesman and the engineer. Elec R & W Elec'n 69:160-1 Jl 22 '16
- Talking points for central-station power. J. H. Schakne. Elec R & W Elec'n 68:675 Ap 15 '16
- Talks to central-station power salesmen. C. H. Stevens. Elec R & W Elec'n 68:508-10, 640-1, 676-7, 761-4, 853-5 Mr 18, Ap 8-15, 29, My 13 '16
- Test to gage both the salesman and his territory. Elec W 67:551-2 Mr 4 '16
- Way to make a salesman. E. E. Whitehorne. Elec W 67:1248-50 My 27 '16

Valuation of property

- Brooklyn rate order not accepted. Elec W 68:1093-4 D 2 '16
- Determining first cost of Edison tube system. J. Loebenstein. Elec W 68:713 O 7 '16
- Experts differ widely on Philadelphia electric plant-renewal costs. Elec W 67:584 Mr 11 '16
- Los Angeles situation. Elec W 68:1020 N 18 '16
- Southern California Edison case decision. Elec W 68:556-7 S 16 '16
- Status of Los Angeles power negotiations. Elec W 68:896-7 N 4 '16
- Symposium on inventories and appraisals of properties. C. L. Cory; W. G. Vincent, jr.; W. J. Norton. Am Inst E E Pro 34:2131-58 S 15; Discussion. 35:236-63 F 16
- Valuation of Los Angeles distributing system. Elec W 67:192-5 Ja 22 '16

- Electric ship propulsion. See Ship propulsion, Electric

- Electric shock. See Electricity, Injuries from

Electric shops

- Basic principles of merchandising exhibited by lighting-fixture concern. il Elec R & W Elec'n 69:424-5 S 2 '16
- Business hints for the electrical dealer. G. D. Crain, jr. Elec R & W Elec'n 69:647-8 O 7 '16
- Cook-by-wire store at Portland, Ore. il Elec W 68:482-3 S 2 '16
- Electric cooking to the housewives' rescue. A. E. Smith. Elec W 66:1262-3 D 4 '15
- Esthetic side of the electric lighting fixture business. il Elec R & W Elec'n 69:433 S 2 '16
- Favorable attraction a merchandising asset. M. V. Rutherford. il Elec R & W Elec'n 69:123-5 Jl 15 '16
- Features of a modern lighting-fixture store. il Elec R & W Elec'n 69:209-11 Jl 29 '16
- Filling the valley of the merchandising curve. H. Cahn. il Elec R & W Elec'n 69:74-5 Jl 8 '16
- Fixture store without a display window. il Elec R & W Elec'n 69:431-3 S 2 '16
- How to keep the electrical business in the family. G. C. Keith. Elec R & W Elec'n 69:254-5 Ag 5 '16
- Merchandising views of Denver dealers. Elec R & W Elec'n 69:522-3 S 16 '16
- Model "house electric" in Baltimore. W. R. Moulton. il plan Elec R & W Elec'n 68:715-18 Ap 22 '16
- Modern lighting-fixture store in Louisville. il Elec R & W Elec'n 69:426-9 S 2 '16
- Modernizing an electric fixture store. I. R. Alexander. il Elec R & W Elec'n 69:935-6 N 25 '16
- Opening a central station showroom. il Elec W 68:421-2 Ag 26 '16
- Problems of the electrical dealer. E. M. Raetz. Elec R & W Elec'n 68:247 F 5 '16

Electric shops—Continued

- Sales-making features embodied in Duluth fixture store. *il Elec R & W Elec'n 68:203-4 Ja 29 '16*
- Suggestions for turning surplus stocks of appliances into cash. *Elec R & W Elec'n 68:381 F 26 '16*
- Turning over stock by means of special sales. G. B. Johnson. *il Elec R & W Elec'n 68:424-5 Mr 4 '16*
- Why the large appliances need personal selling. W. E. Bayard. *il Elec W 67:931-2 Ap 22 '16*

See also Electric railroads—Shops

Electric shovels

- Electric shovel with hydraulic transmission gear. *il Eng N 75:610 Mr 30 '16*
- Mining with electric shovels. *Coal Age 9:533 Mr 25 '16*

Electric signals

- Annunciator system for placing orders in restaurants and lunch rooms. *il Elec R & W Elec'n 68:559 Mr 25 '16*
- Automatic alarm system for water tanks. *il Elec W 67:504-5 F 26 '16*
- Buzzer and sound amplifier, invented by Alban Roberts. *diags Elec W 68:582 S 16 '16*
- Electrical indicator of scores for rifle ranges. *Sci Am 114:304 Mr 18 '16*
- Electrically operated factory signal horn. *il Elec W 66:1332-3 D 11 '15*
- Head-gate opening and forebay-level indicators. *diags Elec W 68:1007-8 N 18 '16*
- Indicating crane signal. *diags Elec W 67:616 Mr 11 '16*
- New factory signal system. *il Iron Age 97:830-1 Ap 6 '16*
- New signaling device for telephone dispatching circuits. *diag Ry R 59:160 JI 29 '16*
- Operating features of a line patrolmen's telephone and signaling system. A. W. Lee. *il diags Elec W 67:1049-50 My 6 '16*
- Protection of railway signal circuits against lightning disturbances. E. K. Shelton. *Gen Elec R 18:1127-8 D '15; Same. Ry R 58:183-4 Ja 29 '16*
- Push-button and program selectors. *il Elec W 67:785-6 Ap 1 '16*
- Scheme to connect power-station signal bell with factory fire-alarm system. J. W. Hanover. *plan Elec W 67:215 Ja 22 '16*
- Signal for water-supply tank. C. J. Fuetter. *diag Coal Age 8:801 N 13 '15; Same. Eng & Min J 100:968 D 11 '15*
- Signaling devices used in Pennsylvania central station. *il diag Elec W 68:670-1 S 30 '16*
- Surface tension jet recorder. *diags Elec W 68:957 N 11 '16*
- Telltale to indicate a faulty arc-light transformer. *diag Elec W 67:44 Ja 1 '16*
- Use of electric horns instead of bells for signaling purposes. H. Restofski. *Elec W 66:1316-17 D 11 '15*
- Utilizing the pressure on railroad rails to operate electric crossing signals. *il diags Sci Am 115:418 N 4 '16*
- Visual and audible signal. *plan Elec R & W Elec'n 68:773 Ap 29 '16*

See also Electric alarms; Electric railroads—Signals; Interlocking plants; Railroads—Signals

Electric signs

- Chicago's huge new 3000-lamp electric flag. *il Elec W 67:773 Ap 1 '16*
- Co-operative sign selling on Pacific coast. *il Elec W 67:487-9 F 26 '16*
- Electric sign attracts attention in Cincinnati. *il Elec R & W Elec'n 67:1011 D 4 '15*
- Electrically operated advertising signs on horse-drawn vehicles. *il Elec R & W Elec'n 68:638 Ap 8 '16*
- How the flag campaign has spread and grown. *il Elec W 67:705-7 Mr 25 '16*
- Interchangeable-letter electric sign. *il Elec W 67:505 F 26 '16*
- Making an electric star of sheet metal. W. Neubecker. *il diags Metal Work 86:102-3 JI 28 '16*
- Reclaiming a business district with electric signs. *il Elec W 67:998-9 Ap 29 '16*
- Seattle sign makes big impression. *il Elec R & W Elec'n 67:1101 D 18 '15*
- Shaded electric sign letter. *il Elec W 66:1388 D 18 '15*

- Sign lighting; abstract. L. G. Shepard. *Elec R & W Elec'n 69:719 O 21 '16*
- Sign that goes like wildfire. *il Elec W 66:1430-1 D 25 '15*
- Superior definition of sign lighted by Edge reflectors. H. E. Weightman. *il Elec W 67:210 Ja 22 '16*
- Value of electric signs to a town. B. E. Jack. *il Elec W 67:935-6 Ap 22 '16*
- What enthusiasm can do for a sign campaign; flag signs. *il Elec R & W Elec'n 68:548-9 Mr 25 '16*
- Winning the customer to the side street. *il Elec W 66:1377 D 18 '15*

Electric sparks

- Ignition of explosive gas mixtures by electric sparks; with discussion. J. D. Morgan. *diags Inst E E J 54:196-203 Ja 15 '16; Abstract. Sci Am S 81:227 Ap 8 '16; Discussion. Inst E E J 54:203-8 Ja 15 '16*
- Spark gap under different ignition pressures. L. A. Quayle. *il Power 42:896 D 28 '15*

Electric standards

- A. I. E. E. standardization rules. *Elec W 68:607 S 23 '16*
- Construction of primary mercurial resistance standards. F. A. Wolff, M. P. Shoemaker, and C. A. Briggs. *il diags U S Bur Stand Bul 12:375-464 F 3 '16*
- Electric units and standards. *U S Bur Stand Circ 60:1-68 '16*
- Electric units and standards. J. H. Dellinger. *J Fr Inst 182:258-9 Ag '16*
- Electrical machinery sections of the standardization rules of the American institute of electrical engineers. H. M. Hobart. *diags Gen Elec R 19:145-56 F '16*
- Jobbers favor outlet box number standardization. *Elec W 68:1025 N 18 '16*
- Production and properties of electrolytic copper. B. Welbourn. *il diag Inst E E J 54:54-62 D 1 '15; Excerpts. Engineer 120:484-5 N 19 '15*
- Standardization. C. Le Maistre. *Am Inst E E Pro 35:1377-84; Discussion. 1385-8 S '16*
- Standardization rules of the American institute of electrical engineers. *Am Inst E E Pro 35:sup1-115 S '16*
- Standards for electric service. *U S Bur Stand Circ 56:1-262 '16; Excerpts. Power 44:398-9 S 12 '16; Abstract. Elec Ry J 48:720 O 7 '16*
- Voltage standardization. M. D. Cooper. *Elec W 68:625-6 S 23 '16*

Electric starters

See also Automobiles—Electric equipment; Automobiles—Starting devices; Electric motors—Starting devices; Motor trucks—Starting devices

Electric stations. *See* Electric plants (central stations)

Electric steel. *See* Steel metallurgy

Electric stevedore. *See* Electric trucks in factories, freight terminals, etc.

Electric stoves

- Acorn electric ranges with sheathed-wire heating units. *il Elec R & W Elec'n 68:732-3 Ap 22 '16; Elec W 67:898 Ap 15 '16*
- Boston Edison sold 1019 electric ranges in one year. *Elec W 68:962-3 N 11 '16*
- Cabinet electric range. *il Elec W 68:1066 N 25 '16*
- Combination gas and electric ranges. *il Elec W 68:94 JI 8 '16*
- Demonstrating a child's electric range during electrical prosperity week. *il Elec W 66:1380 D 18 '15*
- Demonstrating electric-range economy with a kilowatt-hour meter. *il Elec W 67:157 Ja 15 '16*
- Electric combination table stove for several simultaneous cooking operations. *il Elec R & W Elec'n 69:651-2 O 7 '16*
- Electric cooking ranges in hospitals. *il Sci Am S 81:277 Ap 29 '16*
- Electric cooking stove with heat-retaining compartment. *il Elec W 67:955 Ap 22 '16*
- Electric heater stoves. *il Elec W 67:672-3 Mr 18 '16*
- Electric range campaign at Scranton. *Elec R & W Elec'n 67:1009 D 4 '15*
- Electric range for hotel service. F. W. Hewitt. *il Elec R & W Elec'n 68:734 Ap 22 '16*

Electric stoves—Continued

- Electric range in Wellesley college dormitory. Elec R & W Elec'n 67:1908 D 4 '15
- Electric range triumphs at Boston. Elec R & W Elec'n 69:847-8 N 11 '16
- Electric range with elevated oven by Estate stove co. il Elec W 67:280 Ja 29 '16
- Establishing the electric range in the far West. il Elec W 67:924-6 Ap 22 '16
- Globe electric cook stoves. il Elec R & W Elec'n 68:38 Ja 1 '16
- Hotpoint electric ranges. il Elec R & W Elec'n 68:691 Ap 15 '16
- How to maintain prices on electric ranges. J. E. Bullard. Elec R & W Elec'n 69:883-4 N 18 '16
- Letting the clock do the cooking. il Sci Am 115:285 S 23 '16
- Neuco electric range in the Hotel St. Regis. diag Elec R & W Elec'n 68:733-4 Ap 22 '16
- New line of electric stoves and ranges. il diag Elec R & W Elec'n 68:345-7 F 19 '16
- Ranges in New England. A. L. Smith, jr. Elec W 68:1055 N 25 '16
- Rutenber electric ranges. il Elec R & W Elec'n 69:822-3 N 4 '16
- Selling electric ranges in a city of 4000. Glen-dive, Mont. F. C. Hughes. Elec W 67:436-7 F 19 '16
- Selling of electric ranges in a small town. A. S. Hall. il Elec W 67:986-7 Ap 29 '16
- Selling ranges in natural-gas territory. il Elec R & W Elec'n 68:453-5 Mr 11 '16
- Stoneware electric stoves. il Elec R & W Elec'n 68:390-1 F 26 '16
- Electric substations.** See Electric plants (sub-stations); Electric railroads—Substations
- Electric supplies.** See Electric industries; Electric shops
- Electric switchboards.** See Switchboards
- Electric switches**
- Anderson-Elcon inclosed direct-current switch. il Elec W 68:35-6 J1 8 '16; Elec R & W Elec'n 69:78 J1 8 '16
- Arc phenomena. A. G. Collis. il diags Am Inst E E Pro 34:2081-2100 S '15; Discussion. 35: 612-22 My '16
- Automatic cut-out for water tank pump motor. il diags Elec W 68:130-1 J1 15 '16
- Automatic latching device for high-tension knife switches. diag Elec W 68:1100 D 2 '16
- Automatic motor-operated switching apparatus for connecting emergency power source. il Elec R & W Elec'n 68:692-3 Ap 15 '16
- Automatic pole-line oil switch. il Elec R & W Elec'n 67:1032-3 D 4 '15; Elec W 66:1331 D 11 '15
- Automatic switching apparatus to provide continuity of service. il diag Elec W 67: 839-40 Ap 8 '16
- Busbar data for outdoor switching structures. C. A. Mees. diag Elec W 67:86-8 Ja 8 '16
- Construction and layout of high-tension equipment. M. M. Samuels. il diags Elec W 68: 996-9 N 18 '16
- Construction of a high-tension switch hook handle. M. M. Samuels. diag Elec W 67: 1166 My 20 '16
- Convenient adjustable-resistance scheme for testing work. J. B. Leake. diag Elec W 67: 323 F 5 '16
- Design of power-station and substation bus structures. M. M. Samuels. il diags Elec W 67:142-5 Ja 15 '16
- Developments in railway voltage safety switches. il Elec Ry J 48:324 Ag 19 '16
- Disconnecting switch and fuse box for 6600-volt distribution lines. il Elec W 67:1420 Je 17 '16
- Electrically operated remote-control switch. il Elec R & W Elec'n 69:130 J1 15 '16; Elec W 68:39-40 J1 1 '16
- Electroliner push-button switch. il Elec W 68: 876 O 28 '16
- Feed-through flatiron switch. il diags Elec W 68:777 O 14 '16
- Framework-mounted oil switch for moderately high voltages. il Elec R & W Elec'n 67:1084-5 D 11 '15; Elec W 66:1333 D 11 '15
- Guard for field switches used in Detroit station. il Elec W 67:323 F 5 '16
- Hartman automatic switch for use in charging ignition batteries. il diag Elec R & W Elec'n 68:651-2 Ap 8 '16

- High tension switching equipment. J. W. Upp. il plan Gen Elec R 19:986-94 N '16
- Improved service or motor switch of the inclosed type. diags Elec R & W Elec'n 69: 863 N 11 '16
- Improvements in motor-wound time switches. il Elec W 67:112 Ja 8 '16
- Inclosed safety switch. il Elec W 68:585-6 S 16 '16; Coal Age 10:585 O 7 '16; Elec R & W Elec'n 69:654-5 O 7 '16
- Magnetic, solenoid and motor operated switches for controller work. il Elec W 67:1486-7 Je 24 '16
- Master-switch control circuits for large residences. F. Latzer. diags Elec W 67:606-7 Mr 11 '16
- Master switch for house lighting. diags Elec R & W Elec'n 68:648-9 Ap 8 '16
- Motor-operated end-cell switch. D. P. Orcutt. il diags Power 44:750-1 N 28 '16
- Multiple-contact motor-starting knife switches. il Elec R & W Elec'n 69:175 J1 22 '16; Elec W 68:40 J1 1 '16
- New automatic electric switch. il Coal Age 9: 586 Ap 1 '16
- New developments in switchgear control. A. G. Collis. diags Engineer 122:49-51, 75-6 J1 21-28 '16; Abstract. Elec W 68:535 S 9 '16
- Newcastle local section: chairman's address. P. V. Hunter. diags Inst E E J 54:104-10 D 15 '15
- Newton toggle switch. il Elec R & W Elec'n 67:1126 D 18 '15; Elec W 66:1386 D 18 '15
- Obtaining power-house control of distant circuits. il diags Elec R & W Elec'n 69:128-9 J1 15 '16; Correction. 69:215 J1 29 '16
- Oil switches; abstract. B. Bauer. Elec W 67: 891 Ap 15 '16
- Practical safety switch. W. D. Lindsey. il Eng & Min J 102:590 S 30 '16
- Practical talks on controllers—reversing switches. A. A. Fredericks. diags Power 44: 448-50 S 26 '16
- Primary switches reduce transformer core losses. il Elec W 68:479 S 2 '16
- Relay contactor switches. il diag Elec W 68: 241 J1 29 '16
- Safety auto-lock switch. il Elec W 68:241 J1 29 '16
- Safety inclosed switches for motor and service installations. il Elec R & W Elec'n 69: 776 O 28 '16
- Sarco thermo switch. diags Elec W 68:192 J1 22 '16; Elec R & W Elec'n 69:259-60 Ag 5 '16; Heat & Ven 13:52-3 Ag '16; Power 44:541 O 17 '16
- Self-luminous switches and sockets. Sci Am S 82:359 D 2 '16
- Series-parallel switch on line car. H. M. Lloyd. diag Elec Ry J 47:461 Mr 4 '16
- Severe service requires special overhead switch. G. H. McKelway. diag Elec Ry J 48: 237 Ag 5 '16
- Six-ampere feed-through switch with composition body. il Elec R & W Elec'n 69:901 N 18 '16
- Six hundred/1200-volt and 750/1500-volt direct-current change-over switches; abstract. H. R. Meyer. diags Elec W 68:869-70 O 28 '16
- Small industrial oil switches. il Elec R & W Elec'n 69:173-4 J1 22 '16; Elec W 68:37 J1 1 '16; Power 44:201-2 Ag 8 '16; Eng M 52:sup 5-6 O '16
- Solenoid-operated and motor-operated switches for controller work. il Elec R & W Elec'n 68: 1172-4 Je 24 '16
- Switches for controller work. il Iron Tr R 59:682-4 O 5 '16
- Switching arrangement for a lamp bank. R. H. Langley. diag Elec W 67:85 Ja 8 '16
- Tests on oil switches; abstract of third report of Swiss commission on high-tension apparatus. diag Elec W 68:630 S 23 '16
- Tests on substitute for oil in high-tension switches; abstract. M. Vogelsang. Elec W 68:533-4 S 9 '16
- Time switch that controls any combination of two circuits. il Elec W 67:1432-3 Je 17 '16
- See also Electric apparatus; Switchboards

Electric symbols

- Standardization rules of the American institute of electrical engineers. Am Inst E E Pro 35:sup18-20 S '16

Electric symbols—Continued

Uniformity in drawing electrical diagrams; abstract. G. Kapp. diags Elec W 67:833-4 Ap 8 '16

Electric terminology. See Electric wire and wiring—Terminology

Electric testing

Insulation and phasing test panel. G. B. Tanis. diag Elec Ry J 17:828 Ap 29 '16

Portable testing apparatus arranged for one-man operation. E. D. Ransom. il diags Elec Ry J 17:825-7 Ap 29 '16

Rail bond testing. H. H. Febrey. diags Elec Ry J 46:1130-1, 1177-9 D 4-11 '15

Safety precautions when conducting high-potential tests. diags Elec W 68:1104-5 D 2 '16

Testing corner in Atlantic City shops. G. F. Faber. il Elec Ry J 46:24-5 J1 3 '15

Testing plant materials for break-down voltage. H. A. Cozzens, jr. diags Elec W 67:598-9 Mr 11 '16

Testing transformer for signals. il Elec Ry J 48:691 S 30 '16

Underwriters' laboratories and the industry. W. H. Merrill. il Elec W 67:1144-5 My 20 '16

Work of the Underwriters' laboratories. il Elec R & W Elec'n 68:933-5 My 20 '16

See also Dynamometer; Eddy currents; Electric apparatus and appliances—Testing; Electric laboratories; Electric locomotives—Testing; Electric measurement; Electric meters—Testing; Electric motors—Testing; Electric resistance; Electric standards; Electric transformers—Testing; Insulation

Electric toasters

Electric toaster and heater. il Elec W 66:1275 D 4 '15

Electric toys

Electrical toy display shows wide range of suitable gifts. il Elec R & W Elec'n 67:1143 D 25 '15

Electrically operated toys. il Elec W 68:924 N 4 '16

Electric tractors

Electric tractors in lumber mills show economy. Elec R & W Elec'n 68:591 Ap 1 '16

One-wheel electric tractor. il Sci Am 114:106 Ja 22 '16

Saving floors by using tractors. Factory 16: 414+ Ap '16

Tractor for freight handling service. il Ry Age 61:28 J1 7 '16

See also Electric locomotives

Electric transformers

Abnormal voltages in transformers. J. M. Weed. Am Inst E E Pro 34:1621-56 Ag '15; Discussion. 35:526-9 Ap '16

Air-cooled transformers. Elec W 66:1267-8 D 4 '15

Ajax low-voltage transformers. il Elec W 68: 97 J1 8 '16

Bell-ringing transformer. J. Gintz, jr. diags Power 44:276-7 Ag 22 '16

Bell-ringing transformers. il Elec W 66:1334 D 11 '15

Coil-testing transformer. G. F. Faber. diag Elec Ry J 48:364 Ag 26 '16

Combined potential and current-metering transformers. il diag Elec W 67:449 F 19 '16

Commercial standardization of instrument transformers. O. A. Knopp. diags Elec W 67:92-3 Ja 8 '16

Construction and layout of high-tension equipment. M. M. Samuels. il diags Elec W 68: 995-6 N 18 '16

Delta-cross connections of transformers for parallel operation of two- and three-phase systems. G. P. Roux. diags Am Inst E E Pro 34:1683-94 Ag '15; Discussion. 35:530-2 Ap '16

Design of million-volt experimental transformer. G. L. Bayley. il Elec W 67:419-21 F 24 '16

Determination of transformer losses. P. A. Borden. diag Elec W 68:716 O 7 '16

Effect of altitude on transformer temperature rise. Elec W 68:815 O 21 '16

Electric power transmission economics; with table showing efficiencies of transformers. G. P. Roux. Gen Elec R 19:869-78 O '16

Errors due to the use of instrument transformers. R. H. Chadwick. Elec W 66:1308-10 D 11 '15

Experiments with high-voltage transformer. C. H. Thordarson. il Elec R & W Elec'n 68: 21-3 Ja 1 '16

Harmonics in transformer magnetizing currents. J. F. Peters. diags Am Inst E E Pro 34:1657-73 Ag '15; Discussion. 35:422-30 Mr '16

High-frequency testing transformer. il Elec W 68:538-9 S 9 '16

How a transformer and meter installation problem was solved in the Bedford (Ind.) stone district. il diag Elec W 67:1167-8 My 20 '16

How a two-phase-to-three-phase transformation in a station was made at small cost. diag Elec W 67:266 Ja 29 '16

How distribution transformers were used to correct line voltage of arc circuit. diag Elec W 67:45 Ja 1 '16

Indoor type of instrument transformers mounted for outdoor metering. il Elec W 66: 1258-9 D 4 '15

Leaky transformer cases. M. A. Walker. Power 44:517-18 O 10 '16

Leaky transformer cases. M. King. Power 44: 632 O 31 '16

Low-down as against pole-top transformer mounting. P. Capraro. il Elec W 67:96 Ja 8 '16

Low-priced toy transformer. il Elec W 68: 435 Ag 26 '16

Mathematical design of transformers. D. Robertson. diags Inst E E J 54:142-61 Ja 1 '16

Methods of installing fuse switches for transformer installations. il Elec W 67:1365 Je 10 '16

Million-volt commercial frequency transformer. L. R. Perry. il Sci Am 114:299+ Mr 18 '16

Modern transformers for use in large systems. W. S. Moody. il diags Gen Elec R 19:439-45 Je '16

Peculiar motor action caused by service transformer connections. G. W. Tefteau, jr. Elec W 67:601-2 Mr 11 '16

Peculiar voltage conditions on lighting circuits due to incorrect transformer connections. G. W. Tefteau, jr. diag Elec W 67: 1307-8 Je 3 '16

Phase angle of current transformers. C. L. Dawes. Am Inst E E Pro 34:927-40 My '15; Discussion. 35:42-6 Ja '16

Phase-shifting transformer. il Elec W 68:825 O 21 '16

Phenomena accompanying transmission with some types of star transformer connections. L. N. Robinson. Am Inst E E Pro 34:1675-81 Ag '15; Discussion. 35:431-5 Mr '16

Portable derrick for handling pole transformers. R. Ferris. il Elec W 66:1260 D 4 '15

Portable transformer outfit that aids in producing the movies. S. M. Kennedy. il Elec W 67:1469-70 Je 24 '16

Protection of high-voltage distribution systems by isolating transformers. O. O. Rider. Am Inst E E Pro 35:857-9 Je '16

Rotary-converter transformer progress. Elec W 68:877 O 28 '16

Safe construction when installing pole transformers. R. E. Thompson. il Elec W 67:1477 Je 24 '16

Sectionalizing system with isolating transformers. il map Elec W 68:82-3 J1 8 '16

Semi-enclosed track transformers. il Elec Ry J 48:735 O 7 '16

Simple rules for securing satisfactory transformer operation. Elec W 67:432-3 F 19 '16

Sixty-cycle million-volt transformer. H. J. Eveleth. Sci Am 114:77+ Ja 15 '16

Studies in lightning protection on 4000 volt circuits. D. W. Roper. maps Am Inst E E Pro 35:817-55 Je '16; Same cond. Elec W 68:127-9 J1 15 '16; Discussion. Am Inst E E Pro 35:1395-1409 S '16; (Cost of rewinding burned-out transformers). Elec W 67:1479 Je 24 '16

Taps on delta-connected transformers. Elec R & W Elec'n 69:684 O 14 '16

Testing transformer for signals. il Elec Ry J 48:691 S 30 '16

Thordarson wireless transformer. il Elec R & W Elec'n 69:341-2 Ag 19 '16; Elec W 68:288 Ag 5 '16

Toy transformer. il Elec W 66:1277 D 4 '15

Electric transformers—Continued

- Transformer connection to balance load of two banks. H. H. Cox. diag Elec W 67:996 Ap 29 '16
- Transformer connections. E. A. Lof and L. F. Blume. bibliog diags Gen Elec R 19:246-63, 342-50 Ap-May '16
- Transformer house of the C., S. & C. railway at Elyria, Ohio. A. P. Lewis. il Elec Ry J 47:1193-4 Je 24 '16
- Transformer regulation. E. C. Farham. Power 44:721 N 21 '16
- Transformer wiring practice. T. Croft. diags Elec R & W Elec'n 68:29-32 Ja 1 '16
- Transformers; delta connection. Gen Elec R 19:1137 D '16
- Transformers in parallel. diags Power 44:450-1 S 26 '16
- Use of sulphur in bushing filler of oil-cooled transformers. E. J. Hunt. Elec W 66:1317 D 11 '15
- Use of sulphur in bushing filler of oil-insulated transformers. A. C. Hewitt. Elec W 67:435 F 19 '16
- Weatherproof combined potential and current metering transformers. il diags Elec R & W Elec'n 68:210 Ja 29 '16

See also Electric current rectifiers; Electric currents; Electric distribution; Induction coils; Rotary converters

Testing

- Calibration of current transformers by means of mutual inductance. C. Fortescue. diags pls Am Inst E E Pro 34:1199-1215 Je '15; Discussion. 35:38-48 Ja '16
- Measurement of high voltage. W. R. Work. il diags Am Inst E E Pro 35:203-10 F '16
- Operating characteristics of current transformers. M. L. Harned. il diags Elec W 67:869-72 Ap 15 '16
- Voltmeter coil in testing transformers. A. B. Hendricks, Jr. Am Inst E E Pro 35:138 F '16

Electric transmission

- Alabama power company's system and its operation. H. H. Dewey and W. E. Mitchell. il diag map Gen Elec R 19:518-33 Je '16
- Artificial transmission line with adjustable line constants. C. E. Magnusson and S. R. Burbank. bibliog 12 pls diags Am Inst E E Pro 35:1245-57 Ag '16
- Construction of power lines for western logging service. A. E. Ransom. Elec W 68:959 N 11 '16
- Delta-cross connections of transformers for parallel operation of two- and three-phase systems. G. P. Roux. diags Am Inst E E Pro 34:1683-94 Ag '15; Discussion. 35:530-2 Ap '16
- Electric power transmission economics. G. P. Roux. Gen Elec R 19:869-78 O '16
- Electrical transmission and the widening use of electric service. L. Bell. Elec W 67:24-6 Ja 1 '16
- Factors determining the safe spark-over voltage of insulators and bushings for high voltage transmission lines. F. W. Peek, Jr. Gen Elec R 19:483-7 Je '16
- Graphical solution of transmission line problems. T. A. Wilkinson. Elec W 68:317-18 Ag 12 '16
- Have we reached limit of power transmission? an interview with C. P. Steinmetz. il Sci Am 115:503 D 2 '16
- Hyperbolic functions in the calculation of a long distance transmission line. C. R. Reid. Sibley J 30:232-6 Ap '16
- Jitney busses; making reliable connections to a high tension polyphase overhead line. G. P. Roux. diags Gen Elec R 19:755-7 S '16
- Line and substation construction to serve mines. R. P. Hines. il Elec W 67:811-13 Ap 8 '16
- Manchester to Bury electrification. il diags plans Engineer 121:101-3 F 4 '16
- N. E. L. A. 39th annual convention; abstracts of reports and discussions. Elec W 67:1224-5 My 27 '16
- Operation of a small Ohio transmission system. il map Elec W 67:761-3 Ap 1 '16
- Operation of an Ohio interconnected system. il diags map Elec W 67:1294-9 Je 3 '16

- Phenomena accompanying transmission with some types of star transformer connections. L. N. Robinson. Am Inst E E Pro 34:1675-81 Ag '15; Discussion. 35:431-5 Mr '16
- Pole lines of C. M. & St. P. electrification. il Elec R & W Elec'n 69:590-3 S 30 '16
- Power transmission from Sweden to Denmark; abstract. Elec W 67:1372 Je 10 '16
- Report of the transmission committee. P. H. Thomas. diags maps Am Inst E E Pro 35:901-29 Je '16; Discussion. 1627-40 D '16
- Restoration of service after a necessary interruption. F. E. Ricketts. diags Am Inst E E Pro 35:931-44 Je '16
- Schemes that facilitate operation of electric excavators. il Elec W 68:132-3 J1 15 '16
- Theory of electric waves in transmission lines. J. M. Weed. diags Gen Elec R 18:1148-53; 19:141-4, 230-3, 793-7 D '15, F-Mr, S '16
- Thury system of direct current transmission. W. Baum. bibliog il diags map Gen Elec R 18:1026-41 N '15; Same cond. Sci Am S 80:386-7 D 18 '15
- Tie connection between two California companies for exchange of energy. plan Elec W 68:371-2 Ag 19 '16
- Transformer voltages and connections of some large transmission systems; tabulation. E. A. Lof and L. F. Blume. Gen Elec R 19:346-7 My '16
- Transmission of electric energy from Sweden to Denmark. maps Sci Am S 81:377 Je 10 '16
- Uniform load approached by bulk supply. W. N. Ryerson. il plan map Elec W 67:697-700 Mr 25 '16
- Utah transmission line to be extended to large coal mines. Elec W 67:1242 My 27 '16
- Voltage relations in non-symmetrical lines. R. C. Powell. diag Elec W 68:417-18 Ag 26 '16
- Waterloo hydro-electric plant. N. G. Meade. il diags Power 43:429-32 Mr 28 '16

See also Automobiles—Transmission; Electric conductors; Electric conduits; Electric distribution; Electric driving; Electric lines; Electric plants; Electric plants (central stations); Electric plants (substations); Electric power; Electric switches; Hydroelectric plants; Power factor; Voltage reducers; Voltage regulation

Electric transmission lines. *See* Electric lines

Electric trucks

- Atlantic electric truck built in six models. il Horseless Age 37:124-5 F 1 '16
- Atlantic electric trucks. il Munic Eng 50:78 F '16
- Battery service widens electric truck scope. Automobile 35:770-1 N 2 '16
- Chicago grocer buys 11 electric trucks and sells 300 tons of coffee as result. Elec R & W Elec'n 67:1143 D 25 '15
- Electric commercial vehicles in Cincinnati. C. E. Ogden. il Elec R & W Elec'n 68:931-2 My 20 '16
- Electric industrial truck. il Elec W 68:921-2 N 4 '16
- Electric truck and the dealer. D. Baker. il Horseless Age 37:318-19+ Ap 15 '16
- Electric truck troubles. F. E. Whitney. Sci Am S 81:393-4 Je 17 '16
- Electric truck with trolley battery. A. J. Marshall. Automobile 35:225 Ag 10 '16
- Electric-vehicle practice of Stroh brewery, Detroit. il Elec R & W Elec'n 68:16-20 Ja 1 '16
- Ironclad-exide battery. il Eng M 51:sup2-3 S '16
- Large fleets of electric delivery trucks. Elec W 67:160-1 Ja 15 '16
- Platform wagon for arc-lamp trimming costs one cent per mile. il Elec R & W Elec'n 68:238 F 5 '16
- Use of motor wagons for drip pumping. il Gas Age 38:614 D 1 '16

See also Motor trucks

Cost of operation

- Cost of electric-truck operation. C. E. Ogden. Elec R & W Elec'n 68:678 Ap 15 '16
- Electric vehicles in municipal service; data on economy effected. A. J. Slade and R. D. Dumont. Elec R & W Elec'n 67:1045-6 D 4 '15; Abstract. Munic J 39:948-9 D 23 '15

Electric trucks—Cost of operation—*Continued*
Road traction by petrol, steam, and electric motor vehicles. G. M. Gamble. tables Engineer 121:182 F 25 '16
Use of electric vehicles in laundry service. H. Sieninski. Elec R & W Elec'n 69:721-2 O 21 '16; Same cond. Elec W 68:817-18 O 21 '16
What it costs to operate an industrial electric truck. Elec W 67:775 Ap 1 '16

Performance

Testing highway characteristics with the electric vehicle. D. C. Jackson. Elec W 68:14 J1 1 '16; Abstract. Eng & Contr 46:203-4 S 6 '16
Tractive resistances to a motor delivery wagon on different roads and at different speeds. A. E. Kennelly and O. R. Schurig. bibliog il diags Am Inst E E Pro 35:1011-39 Je '16

Price lists

Price guide to electric commercial vehicles. Automobile 34:82 Ja 13 '16
Price list of leading electric commercial vehicles for 1916. C. E. Palmer. Sci Am 114: 36 Ja 1 '16

Safety devices

Safety device for electric vehicles. H. E. Ackerly. il Elec R & W Elec'n 68:591 Ap 1 '16

Specifications

Technical specifications of 53 electric commercial vehicle chassis listed on the American market for the 1916 season. Automobile 34:80-1 Ja 13 '16
Technical specifications of 37 electric commercial vehicle chassis listed on the American market for the 1917 season. Automobile 35:770-1 N 2 '16

Electric trucks, Municipal

Electric trucks in government and city service. il Elec W 67:1360-1 Je 10 '16
Electric vehicles in municipal service. il Sci Am 115:266 S 16 '16
Electric vehicles in municipal service. A. J. Slade and R. D. Dumont. Elec R & W Elec'n 67:1045-6 D 4 '15; Abstract. Munic J 39:948-9 D 23 '15

Electric trucks in factories, freight terminals, etc.

Electric industrial trucks in municipal dock service at Portland, Ore. Elec W 67:440 F 19 '16
Electric truck which carries its own elevator. il Sci Am 114:617 Je 10 '16
Electric trucks for handling freight at Panama railroad terminals. Ry R 58:74 Ja 8 '16
Electric trucks in textile mills. il Textile World 51:1399+ Mr 11 '16
Electric trucks save money at Panama terminal. Eng Rec 72:765-6 D 18 '15
Handling forgings. il Iron Age 98:1223 N 30 '16
Handling materials in manufacturing plants. R. L. Streeter. il Eng M 51:89-100 Ap '16
Helping the electric stevedore. H. C. Yost. il Int Marine Eng 21:448-52 O '16
Hunt trucks, tractors and trailers. G. K. Jenckes. il Int Marine Eng 21:460-1 O '16
Industrial motor trucks for railway and shop. T. V. Buckwalter. il Horseless Age 36:404-5 N 1 '15
Storage battery elevating truck. il Iron Age 97:251 Ja 27 '16
Worm-driven electric shop truck. il Iron Age 97:365 F 10 '16

Electric units

Electric units and standards. U S Bur Stand Circ 60:1-68 '16
International system of electric and magnetic units. J. H. Dellinger. J Fr Inst 182:395-6 S '16

See also Magnetic units

Electric vehicles

British government urged to admit American vehicles. Elec R & W Elec'n 69:836 N 11 '16
Charging electric vehicle batteries. Engineer 122:82-3 J1 28 '16
Economical electric-gasoline car. il Elec W 67: 730 Mr 25 '16
Electric efficiency improved. il Automobile 34: 122-9 Ja 20 '16
Electric passenger cars. il Elec W 67:1434 Je 17 '16

Electric vehicles and storage batteries. Elec R & W Elec'n 68:11-12 Ja 1 '16
Electrical vehicles prove good hill climbers in department-store delivery service. A. J. Marshall. Elec R & W Elec'n 67:1048+ D 4 '15

Horse versus the electric vehicle. A. J. Marshall. Elec R & W Elec'n 68:233-4 F 5 '16

Improved electric-vehicle batteries. il Elec W 67:450 F 19 '16

N. E. L. A. 39th annual convention; abstracts of papers and reports. Elec R & W Elec'n 68:979-80 My 27 '16; Elec W 67:1236-8 My 27 '16

Woods dual power—simple control; gasoline electric incorporates simple linkage of internal combustion and electrical units. il Automobile 35:364-5 Ag 31 '16

See also Electric tractors; Electric trucks; Garages, Electric; Motor cars (railroad)—Storage battery; Storage batteries

Control

Safety control for electric vehicles. il Automobile 34:149 Ja 20 '16

Cost of operation

Comparative cost of operating a passenger gasoline car of same valuation as an electric. Elec R & W Elec'n 68:238 F 5 '16

Electric vibrator. *See* Foundry machinery

Electric washing machines. *See* Washing machines, Electric

Electric water heaters

Automatically regulated electric water-heater. il Elec R & W Elec'n 67:1169-70 D 25 '15
Domestic water heating by electricity versus gas; comparative operating costs. R. L. Webb. Elec W 67:1464-5 Je 24 '16; Same. Gas Age 38:186 Ag 15 '16
Efficiency vs. economy in electric heating of domestic water supply. R. J. Patterson. Elec W 68:727 O 7 '16
Electric heating experiment in Spokane. Heat & Ven 12:45 D '15
Electric ranges and water heaters. Metal Work 86:524 O 27 '16
Electric water heaters for domestic service; abstract. C. W. Crosbie. diags Elec W 68: 773-4 O 14 '16
Electrical water heating in the household. J. L. Shroyer. il Gen Elec R 19:856-65 O '16; Abstract. Elec W 68:966-7 N 11 '16

Equipping a kitchen tank for economical electric hot-water supply. A. R. Haynes. il Elec W 68:185 J1 22 '16

Features of domestic electric cooking and heating. H. B. Peirce. diag Am Inst E E Pro 35:1216-19 Ag '16; Same cond. Elec R & W Elec'n 69:469 S 9 '16

Ferranti electric water heater. il diag Elec W 67:448-9 F 19 '16

Geyser instantaneous electric water heater. il Elec W 68:338-9 Ag 12 '16

Heating water by electricity for domestic purposes. diag Metal Work 86:403 S 29 '16

Home-made electric heater. W. F. M. Werth. diag Elec Ry J 48:364 Ag 26 '16

Immersion-type water heaters. diag Elec W 68:873 O 28 '16

Induction-type water heater. diags Elec W 68: 98 J1 8 '16

Lee electric water-heater. diag Elec R & W Elec'n 68:607 Ap 1 '16

Thermally controlled domestic hot water system. il Elec W 68:489-90 S 2 '16

Electric waves

Abnormal voltages in transformers. J. M. Weed. Am Inst E E Pro 34:1621-56 Ag '15; Discussion. 35:526-9 Ap '16

Amplitude and phase of the higher harmonics in oscillograms. G. W. O. Howe. Inst E E J 54:19-24 D 1 '15

Characteristics of admittance type of wave form standard. F. Bedell. Am Inst E E Pro 35:1171-86 Ag '16

Curve-recording and analyzing devices. il Elec R & W Elec'n 68:124-5 Ja 15 '16; Elec W 67: 335 F 5 '16

Effect of transient voltages on dielectrics. F. W. Peek, jr. il Am Inst E E Pro 34:1695-1747 Ag '15; Discussion. 35:225-35 F '16

Electric waves —Continued

- Exploring the earth's interior with electric waves. *Sci Am* 114:61 *Ja* 8 '16
- Harmonics in transformer magnetizing currents. J. F. Peters. *diags Am Inst E E Pro* 34:1557-73 *Ag* '15; Discussion. 35:422-30 *Mr* '16
- Measurement of alternating current wave form. R. Bown. *il diags Sibley J* 30:165-70 *F* '16
- Mode of studying damped oscillations by the aid of shrinking vectors. D: Robertson. *Inst E E J* 51:21-31 *D* 1 '15
- Theory of electric waves in transmission lines. J. M. Weed. *diags Gen Elec R* 18:1148-53; 19:141-4, 230-3, 793-7 *D* '15, *F-Mr*, *S* '16
- Wave-shapes obtaining with alternating-current generators working under steady short-circuit conditions. A. E. Clayton. *Inst E E J* 54:84-103 *D* 15 '15; Discussion. 54:445-6 *Mr* 1 '16

See also Electric currents, Alternating; Wireless telegraph

Electric welding

- Contact for a portable welding machine. G. H. McKelway. *il Elec Ry J* 47:568 *Mr* 18 '16
- Electric-arc welding: report of committee of Association of railway electrical engineers. *Power* 44:766-7 *N* 28 '16
- Electric cylinder seam welding machine. *il Iron Age* 97:140 *Ja* 13 '16
- Electric spot welder. *il Elec R & W Elec'n* 69:39-40 *Jl* 1 '16; *Iron Age* 98:85 *Jl* 13 '16
- Electric spot welding. D. T. Hamilton. *il diags Mach* 22:1046-51; 23:24-31 *Ag-S* '16
- Electric welded special work and joints at Portland, Ore. *il Elec Ry J* 46:1268 *D* 25 '15
- Electric welding as developed to date. C. B. Auel. *diag Iron Age* 96:1356-9, 1414-16 *D* 9-16 '15; Abstract. *Power* 43:30-2 *Ja* 4 '16
- Electric welding fixture. *il diags Mach* 22:859 *Je* '16
- Electric welding in boiler repairs. *Ry Mech Eng* 90:312-13 *Je* '16; Same. *Ry Age* 60:1185-6 *Je* 2 '16
- Electric welding in railroad shops. G. Fox. *il diags Ry Mech Eng* 90:591-5 *N* '16
- Electric welding process for mine repairs. L. O. Kellogg. *Eng & Min J* 101:744 *Ap* 22 '16
- Electric welding; the various methods in use. J. H. Bryan. *Sci Am S* 80:382-4 *D* 11 '15
- Electrically welding tool-steel tips to machine-steel shanks. *il Elec R & W Elec'n* 69:903 *N* 18 '16; Same. *Elec Ry J* 48:1069 *N* 18 '16; Same. *Iron Age* 98:1224 *N* 30 '16
- Home-made frogs. C. Benham, jr. *il Elec Ry J* 48:407-8 *S* 2 '16
- Making railway rails continuous by means of the electric arc. *il Sci Am* 114:617+ *Je* 10 '16
- Manganese steel welding. P. A. E. Armstrong. *il diags Elec Ry J* 47:1144-6 *Je* 17 '16
- Motor-driven seam-welding machine. *il Iron Age* 98:10 *Jl* 6 '16
- Percussive electric welding; process and machines for uniting similar or dissimilar metals. D. T. Hamilton. *il diags Sci Am S* 80:396-8 *D* 18 '15
- Progress in electric arc welding; with cost table. J. H. Bryan. *Ry Mech Eng* 90:204 *Ap* '16
- Reducing the bore of a gear by means of the electric arc. J: B. Blacklock. *il Elec Ry J* 47:269-70 *F* 19 '16
- Unusual electric butt-welding. *il Mach* 23:20 *S* '16
- Use of slag-coated electrodes and polarity reversal in electric welding. *Elec Ry J* 48:1028-9 *N* 11 '16
- Welding high-speed steel electrically. F. Warren. *il diags Mach* 22:789-90 *My* '16
- Welding manganese steel. *Elec Ry J* 48:27-8 *Jl* 1 '16
- Will electric welding supplant riveting in fabricating structural steel? G. C. Hinckley. *Eng Rec* 74:524 *O* 28 '16

Cost

- Comparative costs between acetylene and arc welding. *Elec R & W Elec'n* 68:71 *Ja* 8 '16
- Cost of electric welding in railroad shop repair work. *Elec W* 68:960 *N* 11 '16
- Cost of electric welding in railroad shops. *Elec R & W Elec'n* 68:241 *F* 5 '16

Electric wire and wiring

- American concentric-wiring fixtures on the market. *Elec W* 67:503 *F* 26 '16
- Analysis of changes in 1915 electrical code. *Elec R & W Elec'n* 68:335-40 *F* 19 '16
- Arrangement of conduit wiring for tub transformers. *il Elec W* 68:765 *O* 14 '16
- Attachment plug with soldered connections. *il Elec R & W Elec'n* 67:1032 *D* 4 '15; *Elec W* 66:1276 *D* 4 '15
- Beyond the wire-your-home month campaign. *Elec W* 67:701-3, 754-7 *Mr* 25-*Ap* 1 '16
- Committee on electric wiring systems of the electrical industry. *Elec R & W Elec'n* 69:146 *Jl* 22 '16
- Concentric wiring. T: H. Day. *Elec R & W Elec'n* 68:383-7 *F* 26 '16
- Concentric-wiring devices for installation in existing buildings. *il Elec W* 67:557-8 *Mr* 4 '16
- Concentric wiring; discussion at the annual meeting of Western association of electrical inspectors, Chicago, Jan. 25-28. *Elec R & W Elec'n* 68:184-5 *Ja* 29 '16; *Elec W* 67:245-6 *Ja* 29 '16
- Copper-clad steel wire. *Elec Ry J* 48:409-10 *S* 2 '16; *Elec W* 68:434 *Ag* 26 '16; *Am Soc M E J* 38:827 *O* '16
- Determining proper connections for meter loops. H: Mulford. *diag Elec W* 67:660 *Mr* 18 '16
- Electric service in largest office building; Equitable building, New York city. R. D. Ward. *il plan Elec W* 67:136-40 *Ja* 15 '16
- Electrical construction at Crane plant, Chicago. *il plans Elec R & W Elec'n* 68:158-62 *Ja* 22 '16
- Electrical construction features of Hotel Morrison, Chicago. *il diags plan Elec R & W Elec'n* 68:111-15 *Ja* 15 '16
- Electrification of isolated factories. *il Engineer* 121:274-5, 310-11, 382-3, 412-14 *Mr* 31, *Ap* 14, *My* 5, 19 '16
- Exposed wire barred in Louisville, Ky. *Elec R & W Elec'n* 67:1149 *D* 25 '15
- Fittings for use in installations of concentric wire. *il Elec R & W Elec'n* 68:518-19 *Mr* 18 '16
- Future of concentric wiring here depends on central stations. R. S. Hale. *il Elec W* 67:676 *Mr* 18 '16
- Heavy wiring in a soap factory; B. J. Johnson soap co., Milwaukee. *il Elec R & W Elec'n* 69:202-4 *Jl* 29 '16
- History and purpose of concentric wiring. R. S. Hale. *Elec W* 67:317-18 *F* 5 '16
- How a laundry secures emergency service from central-station lines. A. Hearvey. *diag Elec W* 66:1318 *D* 11 '15
- Influence of the war upon electric wiring practice in Germany. *Elec W* 67:984-5 *Ap* 29 '16
- Installation of knob-and-tube wiring. T. Croft. *diags Elec R & W Elec'n* 68:552-4 *Mr* 25 '16
- Installing switch boxes in partitions in old houses. *diags Elec W* 68:32 *Jl* 1 '16
- Interior wiring. T. Croft. *diags Elec R & W Elec'n* 67:1105-7, 1146-7; 69:114-17 *D* 18-25 '15, *Jl* 15 '16
- Iron and steel wire for transmission conductors. T. A. Worcester. *Gen Elec R* 19:483-92 *Je* '16
- Iron wire for distribution and transmission lines. *Elec W* 67:820-4 *Ap* 8 '16; Excerpt. *Eng M* 51:600 *Jl* '16
- Liberal supply of wall outlets for the home convenient. *plan Elec W* 67:492 *F* 26 '16
- Maximum watt-dissipation in still air from nickel wire and other data. E. S. Northrup. *diag Met & Chem Eng* 15:250-1 *S* 1 '16
- Methods of varying lamp-bank boards on two-wire and three-phase circuits. J. O. Kammerman. *diags Elec W* 67:1246 *My* 27 '16
- Modern molding-wiring maxims. T. Croft. *diags Elec R & W Elec'n* 68:856-8 *My* 13 '16
- Outside wiring. T. Croft. *diags Elec R & W Elec'n* 68:74-9 *Ja* 8 '16
- Over 400 houses wired in two months, Providence, R. I. *il Elec R & W Elec'n* 67:1064 *D* 11 '15
- Polarized attachment plug and receptacle. *il Elec R & W Elec'n* 67:1126 *D* 18 '15
- Precautions when using copper substitutes. *Elec W* 68:22 *Jl* 1 '16

Electric wire and wiring—Continued

Production and properties of electrolytic copper. L. A. Welbourn. il diag Inst E E J 54: 54-62 D 1 '15; Excerpts. Engineer 120:484-5 N 19 '15

Serious result from trying to make wire-pulling in conduit easy. A. C. Hewitt. Elec W 66:1318 D 11 '15

Service-wire entrances to western irrigation pump houses. diags Elec W 66:1373 D 18 '15

Skin effect factors for iron wire. J. D. Ball. Gen Elec R 19:493-6 Je '16

Special features of department-store wiring. il diags Elec R & W Elec'n 68:809-11 My 6 '16

Theory of three-wire distribution. T. Croft. diags Elec R & W Elec'n 69:812-14 N 4 '16

Transformer wiring practice. T. Croft. diags Elec R & W Elec'n 68:29-32 Ja 1 '16

Trial installation of concentric wiring in Chicago. il plans Elec R & W Elec'n 69:289-91 Ag 12 '16; Same cond. Elec W 68:329-30 Ag 12 '16

Use of flexible cord in wiring. T. Croft. il Elec R & W Elec'n 69:27-8 J1 1 '16

Visual and audible signal. plan Elec R & W Elec'n 68:773 Ap 29 '16

Wiring aboard ship by the one-wire or ship's return system. G. R. Strombom. diags Elec R & W Elec'n 68:679-80 Ap 15 '16

Wiring arrangements for controlling lamps from two, three or more positions. diags Elec W 67:211 Ja 22 '16

Wiring diagram for electric range and water heater controlled by special switch. H. B. Peirce. Am Inst E E Pro 35:1217 Ag '16; Same. Elec R & W Elec'n 69:468-9 S 9 '16

Wiring features of direct-current motor control. diags Elec R & W Elec'n 68:242-4 F 5 '15

Wiring for conditions of moisture and freezing in a concrete cold-storage warehouse. F. C. Taylor. diags Elec W 67:938 Ap 22 '16

Wiring for constant-potential arc lamps and vapor lamps. T. Croft. diags Elec R & W Elec'n 69:247-8 Ag 5 '16

Wiring for electric heating appliances. T. Croft. diags Elec W 68:232-3, 281-2 J1 29-Ag 5 '16

Wiring for electric ranges. diags Elec R & W Elec'n 67:1069-70 D 11 '15

Wiring for mercury-vapor lamps. diags Elec R & W Elec'n 69:555 S 23 '16

Wiring for series lighting circuits. T. Croft. diags Elec R & W Elec'n 68:377-9 F 26 '16

Wiring in very damp places. W. T. Estlick. diags Elec R & W Elec'n 68:1121-2 Je 17 '16

Wiring of fixtures and pendants. T. Croft. diags Elec R & W Elec'n 68:1077-80 Je 10 '16

Wiring of old houses from the contractor's point of view. Elec R & W Elec'n 68:418-21 Mr 4 '16

Wiring old gas lamp posts for electric light. J. B. Story. diag Elec R & W Elec'n 68:234 F 12 '16

Zinc wire. Elec W 67:611 Mr 11 '16

See also Electric cables; Electric conductors; Electric conduits; Electric distribution; Electric inspection; Electric lighting; Electric lines; Electric railroads—Wiring; Electric transmission; Insulation; Telegraph; Telephone; Trolley wire

Cost

Central-station activities in Philadelphia. Elec R & W Elec'n 69:243 Ag 5 '16

Two-room permanent installation as house-wiring entering wedge. il Elec W 67:492-3 F 26 '16

Unit wiring prices in Gardner house-wiring campaign. Elec R & W Elec'n 68:674 Ap 15 '16

Estimates

Estimate of the comparative cost of concentric and knob-and-tube wiring. F. J. Lyon. plan Elec W 67:832 Ap 8 '16

Estimating for the small house-wiring job. F. E. Andrews. Elec R & W Elec'n 69:373-4 Ag 26 '16

Rates

Persistent house-wiring campaign in Rockford produces excellent results. Elec R & W Elec'n 69:22-3 J1 1 '16

Pittsfield company offers premium to stimulate house wiring. Elec R & W Elec'n 68:461 Mr 11 '16

Tables, calculations, etc.

Calculating wire sizes for alternating-current circuits. L: W. Moxey, jr. Elec W 66:1322-4 D 11 '15

Calculating wire sizes for direct-current circuits. L: W. Moxey, jr. Elec W 66:1264-5 D 4 '15

Convenient wiring table. G: Wright. Power 43: 799 Je 6 '16

Direct-current wiring tables. C. P. Poole. Power 44:268-9 Ag 22 '16

Graphical method for calculating feeder sizes. Elec W 68:528 S 9 '16

Terminology

Electric wire and cable terminology. il U S Bur Stand Circ 37:1-13 '15; Excerpt (Electric conductors). Sci Am S 80:384 D 11 '15

Testing

Mechanical strength of copper wire splices. E. R. Shepard. Elec W 68:366-8 Ag 19 '16

Electrical accidents. See Electricity, Injuries from

Electrical code, National. See National electrical code

Electrical contractors' association, National. See National electrical contractors' association

Electrical contractors' association of Wisconsin 13th annual meeting, Milwaukee, Wis., Jan. 17-19. Elec R & W Elec'n 68:142 Ja 22 '16

Electrical credit association of Chicago Annual convention, December 9. Elec R & W Elec'n 67:1121-2 D 18 '15

Electrical engineers, American institute of. See American institute of electrical engineers

Electrical engineers, Institution of. See Institution of electrical engineers

Electrical inspectors, Western association of. See Western association of electrical inspectors

Electrical prosperity week Additional electrical prosperity week returns. il Elec R & W Elec'n 67:1115-19 D 18 '15

Electrical prosperity week scores big success. il Elec R & W Elec'n 67:1071-9 D 11 '15

Good public relations promoted by electrical prosperity week. J. M. Wakeman. Elec W 67:35 Ja 1 '16

Planning for prosperity week. Elec W 66:1239-41 D 4 '15

Prosperity activities in Dayton. Elec R & W Elec'n 67:1162 D 25 '15

Prosperity week celebrations. Elec W 66:1238-9 D 4 '15

Results attained in prosperity week. il Elec W 66:1352-5 D 18 '15

Retrospect of electrical prosperity week. H. W. Alexander. Elec R & W Elec'n 68:65-7 Ja 3 '16

Success marks prosperity week. il Elec W 66: 1294-7 D 11 '15

Electrical safety code, National. See National electrical safety code

Electrical supplies, Associated manufacturers of. See Associated manufacturers of electrical supplies

Electrical supply jobbers' association Midwinter convention, Detroit, Mich., Feb. 15-17. Elec R & W Elec'n 68:364 F 26 '16

Electrical week America's electrical week and plans for the holidays. il Elec R & W Elec'n 69:797-803 N 4 '16; Elec W 68:994, 1086-7 N 18, D 2 '16

Electricity Mechanical analogies in electricity and magnetism. W. S. Franklin. diags Gen Elec R 19:264-71 Ap '16

See also Armatures; Atmospheric electricity; Commutation (electricity); Dielectrics; Dynamos; Electrons; Inductance; Induction coils; Insulation; Lighting; Magnetism; Phonograph; Physics; Radioactivity; Reactance; Stray currents; Telegraph; Telephone; Telpherage; Wireless telegraph; X rays

Electricity—Continued**Cost**

See Power cost

Distribution

See Electric distribution

Industrial applications

See Electric driving; Electric power; Electricity in mining

Rates

See Electric lighting—Rates; Electric power—Rates

Terminology

Standardization rules of the American institute of electrical engineers. *Am Inst E E* Pro 35:supl-115 S '16

See also Electric wire and wiring—Terminology

Electricity, Atmospheric. See Atmospheric electricity

Electricity, Injuries from

Electrical accidents; British government inspector's report; abstracts. *G. S. Ram. Elec R & W Elec'n* 67:1112-13 D 18 '15; *Elec W* 67:163-4 Ja 15 '16

Lightning; its risks and how to avoid them. *E. Thomson and others. il Gen Elec R* 19:166-72 Mr '16

Man factor in accident prevention. *J. Loebenstein. Elec W* 68:334 Ag 12 '16

Value of inflicting pain by a blow in resuscitation after electrical shock. *W. P. Strickland. Elec W* 67:498 F 26 '16; Same. *Elec R & W Elec'n* 69:473 S 9 '16

Electricity, Medical. See Electrotherapeutics

Electricity, Static

Electrified chamois funnels. *Automobile* 34:421 Mr 2 '16

Filtering gasoline through chamois skin. *Metal Work* 86:519 O 27 '16

Gasoline, chamois and sparks. *A. W. Ewell. diag Horseless Age* 37:433+ Je 1 '16

Gasoline plus chamois gives electricity. *Automobile* 33:1098 D 16 '15

How pouring gas creates electricity. *Automobile* 34:385 F 24 '16

Overcoming static effects in a printing shop. *W. T. Osborn. Power* 43:121 Ja 25 '16

Reducing a gasoline fire hazard. *Elec Ry J* 47:84 Ja 8 '16

Static discharge from belts. *R. Thistlewhite. il diag Power* 44:590 O 24 '16

Electricity in agriculture. See Electricity on the farm

Electricity in foundries

Electric power in jobbing foundries. *il Elec R & W Elec'n* 69:323-5 Ag 19 '16

Electricity in the foundry. *R. H. McLain. il Foundry* 44:437-9 O '16

Use of electricity in iron foundries. *il Elec R & W Elec'n* 69:56-8 Jl 8 '16

See also Electric furnaces

Electricity in mining

Application of electric power to mining work in the Witwatersrand area, South Africa. *J. N. Bulkley. diag Am Inst Min E Bul* 110:355-73 F '16; Discussion. 113:903-6 My '16

Bethlehem Chile iron mines electrification. *W. S. Bourlier. il diag Gen Elec R* 19:995-1005 N '16

Compressed air or electricity in mine-stope haulages. *A. E. Middleton. Eng & Min J* 101:221-2 Ja 29 '16

Electric drive at Empire mine. *il Eng & Min J* 102:861-2 N 11 '16

Electric mine haulage. *C. M. Means. Coal Age* 10:624-6 O 14 '16

Electric power in southern mines. *il Iron Tr R* 58:1413-14 Je 29 '16

Electric power transmission. *T. O. Hughes. Coal Age* 10:471 S 16 '16

Electric signaling with bare wires; abstract. *R. V. Wheeler and W. M. Thornton. Elec W* 68:632 S 23 '16

Electrical distribution and application in mines. *H. M. Warren. il diag Coal Age* 10:98-103, 138-41 Jl 15-22 '16

Electrically operated colliery. *B. H. Stockett. Coal Age* 8:925 D 4 '15

Electricity in coal mine haulage. *W. P. Little. il Gen Elec R* 19:693-702, 776-84 Ag-S '16

Electricity in coal mining. *C. B. Davis. Coal Age* 10:633-5 O 14 '16

Explosion-proof motors operating in mines. *C. W. Larson. il Gen Elec R* 19:646-8 Jl '16

Ignition of explosive gas mixtures by electric sparks; with discussion. *J. D. Morgan. diag Am Inst E E J* 54:196-208 Ja 15 '16

Line and substation construction to serve mines. *R. P. Hines. il Elec W* 67:811-13 Ap 8 '16

New electric hoist of the North Butte mining co. *F. Moeller. il diag Am Inst Min E Bul* 110:343-54 F '16; Abstract. *Iron Age* 97:840 Ap 6 '16; Discussion. *Am Inst Min E Bul* 113:907-9 My '16

Nordberg-G. E. hoist for Elm Orlu mining co., Butte, Mont. *Eng & Min J* 101:256-7 F 5 '16

Permissible coal cutters. *il Coal Age* 9:326-8 F 19 '16

Selling service to mines. *W. D. Roberts. il Elec W* 68:183-5 Jl 22 '16

Shock to motorman. *O. Bullock. Coal Age* 10:853-4 N 18 '16

Shot firing in coal mines by electricity controlled from outside. *H. H. Clark, N. V. Breth and C. M. Means. U S Bur Mines Tech Pa* 108:1-33 '15

Synchronous motor-generator set vs. rotary converter. *A. R. Meek. Coal Age* 9:22 Ja 1 '16

Use of electricity in coal-mining operations. *il Elec R & W Elec'n* 69:149-54 Jl 22 '16

See also Electric shovels; Locomotives, Mine

Electricity in the home

Costs of operating domestic appliances. *Elec R & W Elec'n* 69:200 Jl 29 '16

Electric heating devices. *W. M. Stearns. Elec R & W Elec'n* 67:1062-3 D 11 '15

Electrical invasion of the home. *C. H. Claudy. il Sci Am* 115:502+ D 2 '16

Electricity in small households; abstract. *W. B. Smith. Elec W* 68:1015 N 18 '16

See also Electric cooking; Electric heating; Electric lighting; Electric stoves; Electric toasters; Electric water heaters; Washing machines, Electric

Electricity in war

Electricity in the field of war. *Sci Am S* 81:60 Ja 22 '16

Electricity on ships

Advantages of rigid conduit over flexible cable in marine electrical work. *G. R. Strombom. Elec R & W Elec'n* 69:473 S 9 '16

Mechanical and electrical equipment of new lake freight steamship Nevada. *Elec R & W Elec'n* 68:85-6 Ja 8 '16

Standard marine electrical installations. *H. A. Hornor. il diag Am Inst E E Pro* 34:1515-48 Ag '15; Discussion. 35:221 F '16

What preparedness means in the industry. *F. J. Sprague. il Elec W* 67:1036-8 My 6 '16

Wiring aboard ship by the one-wire or ship's return system. *G. R. Strombom. diag Elec R & W Elec'n* 68:679-80 Ap 15 '16

See also Ship propulsion, Electric

Electricity on the farm

Classification of farm lighting systems. *C. H. Roth. Elec R & W Elec'n* 68:101 Ja 15 '16

Eight western power companies conduct joint exhibit at Salem, Ore. *il Elec W* 67:200 Ja 22 '16

Electricity in agriculture; report of activities in England. *Elec R & W Elec'n* 69:154 Jl 22 '16

Electricity in rural communities. *il Elec R & W Elec'n* 68:410-14 Mr 4 '16

Electricity on a duck farm. *J. L. Springer. il Elec R & W Elec'n* 69:24-5 Jl 1 '16

Electricity on a Massachusetts farm. *il Elec W* 67:934-5 Ap 22 '16

Kansas farmers do threshing by central station power. *il Elec W* 68:376-7 Ag 19 '16

Rural development of transmission lines in eastern Pennsylvania. *J. W. Price. il Gen Elec R* 19:109-14 F '16

See also Electric service, Rural

Electricity supply

Universal electricity supply. S: Insull. Eng Soc W 1'a 32:187-94 Ap '16

Dublin

Dublin electricity supply. P. W. d'Alton. Engineer 122:411-12 N 10 '16

Great Britain

Electric power supply on the northwest coast of England; abstract. R. P. Sloan. Elec W 68:1014 N 18 '16

Electricity and the economical use of coal. R. A. Chattock. Engineer 122:348 O 20 '16
Interconnection of British generating systems. map Elec W 68:894-5 N 4 '16

Electrification. See Railroads—Electrification**Electrochemical society, American.** See American electrochemical society**Electrochemistry**

Electro-chemical action on glass. F. F. S. Bryson. il Sci Am S 82:277 O 28 '16

Electrochemical industries and their interest in the development of water powers. L. Addicks. Am Inst E E Pro 35:533-40 My '16; Same cond. Met & Chem Eng 14:469-71 My 1 '16; Excerpts. Eng Rec 73:679 My 20 '16

Electrochemical possibilities of the Pacific coast states as compared with those of Sweden and Norway. J. W. Beckman. Met & Chem Eng 15:18-21 J1 1 '16

Electrochemistry and electric furnaces. Elec R & W Elec'n 68:7 Ja 1 '16

Fixation of atmospheric nitrogen. R. G. Skerrett. il Iron Age 97:359-62 F 10 '16

Niagara falls power famine; meeting of the Committee on foreign affairs of House of representatives and the Niagara Falls board of trade. Met & Chem Eng 15:115-20 Ag 1 '16

Niagara power and industrial self-containedness. F. J. Tone. Met & Chem Eng 14:240-1 Mr 1 '16

Niagara power famine and the electrochemical situation. F. A. Lidbury. Elec W 68:216-17 J1 29 '16

Place of electrochemistry in the arts of war and peace. E. F. Roeber. Elec W 67:26-7 Ja 1 '16

See also Dissociation; Electric batteries; Electric furnaces; Electrolysis; Electrolytes; Electrometallurgy; Electromotive force; Electroplating; Electrosynthesis; Nitrogen; Passivity of metals

Electrocution of animals

Killing animals by electricity. H. Smith and W. L. Puffer. il Sci Am 113:542-4 D 18 '15

Electrodeposition of metals. See Electroplating**Electrodes**

Anodic relations of passive iron with notes on polarization potentials as influenced by external gas pressures. H. G. Byers and S. C. Langdon. diags Am Chem Soc J 38:362-74 F '16

Convenient dip electrode. G. J. Van Zoeren. diags Am Chem Soc J 38:652-3 Mr '16

Effect of pressure upon the potential of the hydrogen electrode. N. E. Loomis and S. F. Acree. Am Chem Soc J 38:2391-6 N '16

Electrode surface phenomena. W. C. Arsem. Met & Chem Eng 14:480 My 1 '16

Potential of the mercury electrode against mercurous ion. G. A. Linhart. diags Am Chem Soc J 38:2356-61 N '16

Studies in the measurement of the electrical conductivity of solutions at different frequencies. W. A. Taylor and S. F. Acree. Am Chem Soc J 38:2415-30 N '16

Study of the lead electrode. F. H. Getman. il Am Chem Soc J 38:792-801 Ap '16

Study of the tenth-normal hydrochloric acid calomel electrode. N. E. Loomis and M. R. Meacham. Am Chem Soc J 38:2310-16 N '16

See also Silver electrodes

Electrogalvanizing. See Galvanizing**Electrograph**

Electric-sign bulletin. Elec W 68:385 Ag 19 '16

Electrohorticulture

Retarding tree budding electrolytically. P. E. Fuller. Sci Am 114:425 Ap 22 '16

Electrolysis

Bipolar oxygen and hydrogen generator. il Ry Mech Eng 90:45-6 Ja '16

Caustic soda, chlorine and chlorate; patents. diags Met & Chem Eng 14:539-41 My 1 '16

Chloride electrolysis; U. S. patents. diags Met & Chem Eng 14:664-5 Je 1 '16

Electrolysis of alkaline solutions of potassium sulphocyanate. W. J. Crook, L. E. Booth and A. Thiel. Met & Chem Eng 14:587-91 My 15 '16

Electrolysis of cryolite-magnesium oxide mixture. M. D. Thompson. Met & Chem Eng 15:504 N 1 '16

Electrolysis of nitric acid, sulphuric acid and orthophosphoric acid, using a gold anode. F. H. Jeffery. Met & Chem Eng 13:964 D 15 '15

Electrolytic cell for making pure oxygen and hydrogen. il Met & Chem Eng 14:108-10 Ja 15 '16

Electrolytic cell for production of bleach; patent by A. Holliday. diags Met & Chem Eng 15:539 N 1 '16

Electrolytic chlorine for laundries. H. P. Hill. il diags Elec W 68:224-5 J1 29 '16

Electrolytic determination of bismuth in bismuth β -naphthol. B. L. Murray. J Ind & Eng Chem 8:257-8 Mr '16

Electrolytic determination of copper in copper-manganese. E. D. Koepping. Met & Chem Eng 14:441-2 Ap 15 '16

Electrolytic determination of mercury in mercury oleates. B. L. Murray. J Ind & Eng Chem 8:257 Mr '16

Electrolytic hydrogen. H. L. Barnitz. il diags Sci Am S 82:356-8 D 2 '16

Electrolytic oxygen and hydrogen installation in a shipbuilding plant. il Met & Chem Eng 14:288-9 Mr 1 '16

Electrolytic precipitation from cyanide solutions. G. H. Clevenger. Eng & Min J 102:579-82 S 30 '16

High temperature heat developed during electrolysis. C. Hering. Met & Chem Eng 15:454-5 O 15 '16

Method for the study of silver-peroxynitrate; abstract. M. J. Brown. Met & Chem Eng 15:479 O 15 '16

Revision of the atomic weight of cadmium; the electrolytic determination of cadmium in cadmium bromide. G. P. Baxter, M. R. Grose and M. L. Hartmann. Am Chem Soc J 38:857-67 Ap '16

Revision of the atomic weight of zinc; the electrolytic determination of zinc in zinc bromide. G. P. Baxter and M. R. Grose. Am Chem Soc J 38:868-73 Ap '16

Sodium amids; patent by E. A. Ashcroft. diags Met & Chem Eng 15:603-4 N 15 '16

Technical production of hydrogen and its industrial application. H. L. Barnitz. Met & Chem Eng 14:393-4 Ap 1 '16

Use of hydrofluoric acid in the separation of some heavy metals from tin, antimony, tungsten, and molybdenum, by means of the electric current. L. W. McCay and N. H. Furman. Am Chem Soc J 38:640-52 Mr '16

See also Dissociation; Electrochemistry, Electrodes; Electrolytes; Electrolytic corrosion; Electrometallurgy

Electrolytes

Conductivity and dissociation of some rather unusual salts in aqueous solution. C. Watkins and H. C. Jones. Am Chem Soc J 37:2626-36 D '15

Measurement of electrolytic conductivity; the theory of the design of conductivity cells. E. W. Washburn. diags Am Chem Soc J 38:2431-60 N '16

Osmose of some solutions of electrolytes with porcelain membranes, and the relation of osmose to membrane potential. F. E. Bartell and C. D. Hocker. diags Am Chem Soc J 38:1036-50 My '16

Relation of osmose of solutions of electrolytes to membrane potentials. F. E. Bartell and C. D. Hocker. Am Chem Soc J 38:1029-36 My '16

Relations between the constants of dibasic acids and of amphoteric electrolytes. E. Q. Adams. Am Chem Soc J 38:1503-10 Ag '16

See also Electric batteries; Electrochemistry; Electrodes; Electrolysis; Storage batteries

Electrolytic cleaning

Study of the electrolytic method of silver cleaning. H. L. Lang and C. F. Walton, jr. U S Agric Bul 449:1-12 '16

Electrolytic corrosion

Corrosion and the engineer. W. H. Walker. Met & Chem Eng 14:388-9 Ap 1 '16

Desirability and method of connecting low-voltage secondary electrical circuits to water pipes—effect on the pipe system. B. McCollum and O. S. Peters. Eng & Contr 44:488 D 29 '15; Summary. Am Gas Light J 104:130 F 28 '16; Summary. Munic Eng 50:46 F '16

Earth resistance and its relation to electrolysis of underground structures. B. McCollum and K. H. Logan. diags U S Bur Stand Tech Pa 26:1-48 '15

Effects of electrolysis on engineering structures. A. F. Ganz. bibliog Stevens Ind 32:316-47 O '15; Excerpt. Sci Am S 81:302-3 My 6 '16

Electrolysis. E. Heydon. Elec R & W Elec'n 68:647 Ap 8 '16

Electrolysis and its mitigation. E. B. Rosa and B. McCollum. il diags U S Bur Stand Tech Pa 52:1-143 '15; Excerpts. Elec W 67:273-4 Ja 29 '16

Electrolysis in Providence. R. I. Munic Eng 50:5 Ja '16

Electrolytic corrosion of metals; abstract. W. H. Walker. Elec R & W Elec'n 68:494 Mr 18 '16

Influence of frequency of alternating or infrequently reversed current on electrolytic corrosion. B. McCollum and G. H. Ahlborn. il diags U S Bur Stand Tech Pa 72:1-31 '16; Same. Am Inst E E Pro 35:371-97 Mr '16; Abstract. Elec R & W Elec'n 68:493 Mr 18 '16; Conclusions. Elec Ry J 47:563-4 Mr 18 '16; Conclusions and discussion. Met & Chem Eng 14:389-91 Ap 1 '16; Discussion. Am Inst E E Pro 35:1113-30 Ji '16

Leakage of currents from electric railways. B. McCollum and K. H. Logan. diags U S Bur Stand Tech Pa 63:1-31 '16

Methods of making electrolysis surveys. B. McCollum and G. H. Ahlborn. il diags U S Bur Stand Tech Pa 28:1-84 '16

Minimizing electrolysis of cable sheaths. diags Elec W 67:769-70 Ap 1 '16

Overhead electrolysis and porcelain strain insulators. S. L. Foster. il Am Inst E E Pro 34:1549-58 Ag '15; Abstract. Elec Ry J 46:582-3 S 18 '15; Discussion. Am Inst E E Pro 35:623-6 My '16

Procedure in making electrolysis surveys. B. McCollum and G. H. Ahlborn. J Fr Inst 182:253-5 Ag '16

Report of committee of American water works association on electrolysis. Am Water Works Assn J 3:700-2 S '16; Same. Elec Ry J 47:1129 Je 17 '16; Discussion. Am Water Works Assn J 3:702-4 S '16

Special studies in electrolysis mitigation; a preliminary report on electrolysis mitigation in Elyria, Ohio, with recommendations for mitigation. B. McCollum and K. H. Logan. maps U S Bur Stand Tech Pa 55:1-49 '16

Special studies in electrolysis mitigation; a report on conditions in Springfield, Ohio, with insulated feeder system installed. B. McCollum and G. H. Ahlborn. maps U S Bur Stand Tech Pa 54:1-64 '16

Voltaic corrosion and prevention. T. J. Rogers. Int Marine Eng 21:250-1 My '16
See also Corrosion and anti-corrosives

Electrolytic refining. See Electrometallurgy**Electrolytic zinc.** See Zinc metallurgy**Electromagnetism**

Electrical universe. Sci Am S 81:11 Ja 1 '16

Interpretation of electromagnetism units. M. Ascoli. Elec W 67:876-8 Ap 15 '16

Electromagnets

Electromagnet; various types. C. R. Underhill. diags Sibley J 30:227-9 Ap '16

Great electro-magnets. A. Cotton. diags Sci Am S 81:300-1, 316-17 My 6-13 '16

Theory and operation of split-phase magnet. F. Hymans. diags Elec W 63:1000-2 N 18 '16

See also Armatures; Commutators; Induction coils

Therapeutic use

Treating stomach trouble by electro-magnet. Sci Am S 82:55 Ji 22 '16

Electromagnets, Lifting. See Lifting magnets**Electrometallurgy**

American electrochemical society 29th general meeting, Washington, April 27-29. Elec R & W Elec'n 68:791-2 My 6 '16; Iron Age 97:1076-8 My 4 '16

Analysis of tank resistance in electrolytic refining. L. Addicks. diags Met & Chem Eng 15:566-71 N 15 '16; Excerpts. Elec W 68:1110-11 D 2 '16

Electric furnace products. F. J. Tone. Met & Chem Eng 14:509-11 My 1 '16; Same (Ferroalloys and Niagara water power). Iron Age 97:1124-5 My 4 '16

Electro-analytical method for the determination and separation of the metals of the copper-tin group. E. P. Schoch and D. J. Brown. diags Am Chem Soc J 38:1660-81 S '16

Electrolytic copper refining. F. L. Antisell and S. Skowronski. Eng & Min J 102:874-6 N 11 '16

Electrolytic recovery of lead from brine leaches. C. E. Sims and O. C. Ralston. diags Met & Chem Eng 15:410-15 O 1 '16

Electrolytic recovery of lead from brine leaches. M. R. Thompson; O. C. Ralston. Met & Chem Eng 15:614-15 D 1 '16

Electrolytic zinc. W. R. Ingalls. Eng & Min J 101:125-8 Mr 4 '16; Same abstr. Met & Chem Eng 14:264-5 Mr 1 '16

Electrolytic zinc at Bully Hill, Cal. C. A. Hansen. il Met & Chem Eng 14:120-2 F 1 '16

Electrolytic zinc dust. H. J. Morgan and O. C. Ralston. Met & Chem Eng 15:465-8 O 15 '16

Electrometallurgy of iron and steel and Pacific coast waterpowers. J. O. Boving. Met & Chem Eng 15:224 S 1 '16

Metal tie-up in electrolytic refining. L. Addicks. Met & Chem Eng 15:305-12 S 15 '16

Multiple vs. series electrolytic copper refining. P. L. Gill. Eng & Min J 101:9-10 Ja 1 '16

Preparation of pure iron and iron-carbon alloys. J. R. Cain, E. Schramm and H. E. Cleaves. il diags J Ind & Eng Chem 8:217-20 Mr '16

Recent progress in electrolytic iron. O. W. Storey. Met & Chem Eng 14:534-6 My 1 '16; Same. Iron Tr R 58:1043-5 My 11 '16; Same, with bibliography. Sci Am S 82:198-9 S 23 '16

See also Cyanide process; Electric furnaces; Electrochemistry; Electrolysis; Electrolytic corrosion; Electroplating; Electrotyping; Magnetic separation of ores; Metallurgy

Electromotive force

Electric activity in ore deposits. R. C. Wells. Sci Am S 81:14-16, 31-2 Ja 1-8 '16

Fundamental principles of alternating current. F. A. Annett. diags Power 42:789-91, 852-4, 897-8; 43:182-4, 211-13, 538-41 D 7, 21-28 '15, F 8-15, Ap 18 '16

Hydrogen and chlorine ion activities of solutions of potassium chloride in 0.1 molal hydrochloric acid. H. S. Harned. Am Chem Soc J 38:1986-95 O '16

Measurements of resistivity and thermal electromotive force of samples of calcium, aluminium, magnesium, alloys of aluminium and magnesium and the thermal e. m. f. curve of nickel vs. nichrome. E. F. Northrup. Met & Chem Eng 15:193-7 Ag 15 '16
Study of the tenth-normal hydrochloric acid calomel electrode. N. E. Loomis and M. R. Meacham. Am Chem Soc J 38:2310-16 N '16
See also Passivity of metals

Electrons

Electron theory of matter. Elec R & W Elec'n 69:495 S 16 '16

Electron theory of metallic conduction. Elec R & W Elec'n 69:535-6 S 23 '16

Ionic mobilities in hydrogen and nitrogen; abstract. W. B. Haines. Elec W 66:1269 D 4 '15

Electrons—Continued

Radiation from atoms and electrons. J. J. Thomson. *Sci Am S* 81:290-1, 306-7, 322-3, 338-9, 354-5, 370-1 *My* 6-*Je* 10 '16

Single-line spectra of magnesium and other metals and their ionizing potentials. J. C. McLennan. *il diags J Fr Inst* 181:191-207 *F* '16

Valence theory of J. Stark from a chemical standpoint; abstracted by Dorothy A. Hahn and Mary E. Holmes. *diags Am Chem Soc J* 37:2611-26 *D* '15

Variable conductors. C. C. Bidwell. Sibley *J* 30:255-6 *My* '16

See also Electric discharges thru gases; Radioactivity

Electroactivity

See also Dielectrics; Electric currents, Alternating; Electric precipitation; Electric waves; Radioactivity

Electrophysiology

Human body as an electrical system. G. Bucky. *Sci Am S* 82:2-3 *Jl* 1 '16

Electroplating

Abstracts of electroplating papers read at the Washington meeting of American electrochemical society. *Met & Chem Eng* 14:482-4 *My* 1 '16

Better foremen—an economic gain. T. Brown. *Metal Ind n s* 14:117-18 *Mr* '16

Bronzing processes suitable for brass and copper. T. I. Baker. *Metal Ind n s* 13:464-5, 501 *N-D* '15

Cobalt in electrical engineering. *Elec W* 66:1325 *D* 11 '15

Continuous electroplating apparatus for magnetic material, patented by N. W. Buch. *diag Met & Chem Eng* 14:222-3 *F* 15 '16

Copper cyanide solutions. W. H. Weber. *Metal Ind n s* 13:493-4 *D* '15

Determining weight of deposit. L. C. Wilson. *il Metal Ind n s* 12:206-7, 335-7, 505-6; 13:152-4, 277-8, 506-7; 14:122-3, 378-9 *My, Ag, D* '14, *Ap, Jl, D* '15, *Mr, S* '16

Electro-deposition of cobalt. *Metal Ind n s* 14:19-20 *Ja* '16

Electro-deposition of cobalt. E. P. Later. *Foundry* 44:111-13, 141-3 *Mr-Ap* '16

Electroplating bronze. W. D. Treadwell and E. Beck. *Elec R & W Elec'n* 67:1056 *D* 11 '15

Electro-plating engineering. C. B. Willmore. *il diags Metal Ind n s* 14:8-10, 109-12, 250-1, 427-8 *Ja, Mr, Je, O* '16 (to be cont)

Electro-plating factors; number of amperes required to deposit one pound of metal per hour. *Metal Ind n s* 14:245 *Je* '16

Electro-plating with cobalt. *Sci Am S* 82:7 *Jl* 1 '16

Modern acid-dipping, electroplating and japanning plant. H. N. Trumbull. *il Gen Elec R* 18:1121-6 *D* '15; Abstract. *Iron Age* 97:661 *Mr* 16 '16

Nickel anodes and dollars. F. W. Hobbs. *Metal Ind n s* 14:65 *F* '16

Peptone as an addition agent in stannous ammonium oxalate baths. F. C. Mathers and B. W. Cockrum. *Metal Ind n s* 14:252-3 *Je* '16

Progress in electro-plating. C. H. Proctor. *Metal Ind n s* 14:6-7 *Ja* '16

Quantitative data on cathode deposited metals. P. G. Nutting. *J Fr Inst* 182:115-16 *Jl* '16

Tests of tin plating baths. F. C. Mathers and B. W. Cockrum. *Metal Ind n s* 14:200-1 *My* '16; Same. *Iron Tr R* 59:839-40 *O* 26 '16

Unresolved problems of the electro-plater. G. B. Hogaboom. *Metal Ind n s* 14:194-6 *My* '16

Work of the Bureau of standards and its relation to the electroplating industries. W. Blum. *Metal Ind n s* 14:135-6 *Mr* '16

See also Galvanizing; Nickel plating; Silver plating

Electroplating industry

American electro-platers' society convention to be held in Cleveland; plating industries of Cleveland. H. J. Ter Doest. *il Metal Ind n s* 14:235-40 *Je* '16

Electrostatic separation of oil. *See* Oil separators

Electrosynthesis

Electrical synthesis of colloids. H. T. Beans and H. E. Eastlack. *diags Am Chem Soc J* 37:2667-83 *D* '15

Electrotherapeutics

Compact high-frequency generator for electrotherapeutics. *il Elec R & W Elec'n* 68:441 *Mr* 4 '16

Electric belts. *Elec R & W Elec'n* 68:477 *Mr* 11 '16

Modern science and war surgery; artificial sun baths and electric heating of the body. *il Sci Am S* 81:116 *F* 19 '16

Electrotyping

Copper electrotyping baths. *Metal Ind n s* 14:5 *Ja* '16; Same. *Inland Ptr* 56:495 *Ja* '16

Electrotyping for advertising. *Inland Ptr* 57:56 *Ap* '16

Preliminary studies on the deposition of copper in electrotyping baths; abstract. W. Blum, H. D. Holler and H. S. Rawson. *Met & Chem Eng* 15:477 *O* 15 '16

Regulation of electrotyping solution. *Metal Ind n s* 14:324 *Ag* '16

Steel electro. N. J. Werner. *Inland Ptr* 57:188-92 *My* '16

Elements, Chemical. *See* Chemical elements

Elephant Butte dam

Back of dam coated by cement gun from raft as pool rises. *Eng Rec* 73:400 *Mr* 18 '16

Costs of applying mortar with the cement gun. *Eng N* 75:469 *Mr* 9 '16

Elephant Butte dam; plan and sections. *il Engineer* 122:185-6, 190 *S* 1 '16

Greatest irrigation storage enterprise in the world. *il Sci Am S* 82:37 *Jl* 15 '16

Outlet control of Elephant Butte dam. F. Teichman. *diags plan Eng N* 76:1015-17 *N* 30 '16

Elephants, Fossil

King of elephants. W. P. Pycraft. *il Sci Am S* 81:228 *Ap* 8 '16

Elevated railroads

Elevated railway of domed arch construction a strong contrast to steel structure. *il diags Eng Rec* 74:254-6 *Ag* 26 '16

Improvement of Manhattan elevated railways, New York city. *diags maps Ry R* 58:293-7 *F* 26 '16

Queens boulevard viaduct, New York Elevated line. A. M. Wyman. *il diags Ry R* 59:111-16 *Jl* 22 '16

Special details are used in design of steel elevated structures in Brooklyn. *il diags Eng Rec* 74:82-4 *Jl* 15 '16

Third tracking complete on the New York Elevated. *il Elec Ry J* 47:128 *Ja* 15 '16

See also Boston Elevated railway

Elevator lobbies

Types of elevator lobbies in office buildings. C. F. Baker. *il plans Arch Rec* 38:631-40 *D* '15; Same cond. *Eng & Contr* 45:452-3 *My* 17 '16

Elevators

Barrel elevator installed without deep pit. *il diag Eng Rec* 74:606 *N* 11 '16

Continuous package elevators on Philadelphia piers. H. J. Edsall. *diag Eng N* 76:406-7 *Ag* 31 '16

Elevator machinery lubrication. J. Gintz, jr. *Power* 44:562 *O* 17 '16

Elevator pits and machinery floors in concrete buildings. A. M. Wolf. *diags Eng & Contr* 46:448-50 *N* 22 '16

Garage business—buildings, equipment, methods. P. M. Heldt. *il diags Horseless Age* 37:76-8 *Ja* 15 '16

Handling materials in manufacturing plants. R. L. Streeter. *il Eng M* 50:869-96 *Mr* '16

See also Hoisting machinery

Safety devices

Additional safety device for electric elevator. P. L. Cooper. *diag Elec R & W Elec'n* 69:932 *N* 25 '16

Automatic elevator safety device. *diags Elec W* 68:556-7 *S* 16 '16

Electrically interlocking of elevator doors and motor to prevent accidents. *diag Elec W* 67:1108 *My* 13 '16

Elevator door switch and threshold lamp. *il Elec W* 66:1386 *D* 18 '15

Passenger-elevator door and control safety locking device. *diags Elec R & W Elec'n* 69:388-9 *Ag* 26 '16

Elevators, Electric

Characteristics of the high-resistance rotor, squirrel-cage motor for elevator service and a comparison with the phase-wound rotor machine. R. H. McLain. *Gen Elec R* 19:69-74 Ja '16

Electric lifts. diags *Engineer* 121:232-3 Mr 17 '16

Electric service in largest office building; Equitable building, New York city. R. D. Ward. *Il plan Elec W* 67:136-40 Ja 15 '16

Elevator equipment of Cleveland's new city hall. *Il Elec R & W Elec'n* 69:901-2 N 18 '16

Gearless traction elevators. *Il diag Power* 43:772-4 My 30 '16

New man hoist at Inspiration consolidated copper co. *Il Eng & Min J* 101:476-7 Mr 11 '16

Elevators, Grain. See Grain elevators**Elliott Cresson medal**

Presentation of the Elliott Cresson medal to the American telephone and telegraph company, through Theodore Newton Vail. *J Fr Inst* 182:97-101 Jl '16

Elm

American elm. S: B. Detwiler. *Il map Am For* 22:259-62 My '16

Commercial uses of the white elm. *Il Am For* 22:262-7 My '16

El Paso & Southwestern railroad

Abstract of annual report for 1916. map *Ry Age* 61:786-7 N 3 '16

Embankments

Building railway embankment with hydraulic dredges. diags *Eng & Contr* 45:129 F 9 '16

Common causes of railway slips and their prevention. diags *Eng N* 75:514-15 Mr 16 '16

Making the earthwork approach to Columbia river bridge. E. E. Howard. *Il diag Eng N* 75:145-9 Ja 27 '16

See also Levees; Sea walls

Embroidery

Women's muslin-underwear industry. U S Bur For & Dom Com misc ser 29:156-63 '15

Emeralds

Emerald deposits of Muzo, Colombia. J. E. Pogue. bibliog *Il diags maps Am Inst Min E Bul* 113:799-822 My '16; Discussion. 118:1869-70 O '16

Emery wheels

See also Grinding wheels

Empire state gas and electric association

December meeting—gas works' methods. *Am Gas Light J* 103:393 D 20 '15

Gas distribution section meeting, Yonkers, N. Y., Feb. 11. *Am Gas Light J* 104:137 F 28 '16

Employees

Breaking down the language barrier. J. D. Hackett. *Iron Age* 97:293-4 F 3 '16

Continuation jobs for veteran employees. H. D. Walcomb. *Ry R* 59:160-2 Jl 29 '16

Cost of health supervision of employees; with table. M. W. Alexander. *Iron Age* 98:910-11 O 19 '16

Discharging employee on protest of fellows. E. J. Buckley. *Metal Work* 85:105 Ja 14 '16

Efficient employees are an element in costs. S. J. Dill. *Elec W* 68:410-11 Ag 26 '16

Facing the man problem. F. W. Harris. *Factory* 17:396-8 O '16

Health protection an economic duty. *Metal Work* 86:18 Jl 7 '16

Human-being management. *Ind Management* 52:398-400 D '16

Instructing employes by bulletins. C: S. Ritter. *Gas Age* 38:465-6 N 1 '16

Maintaining loyalty of sales force. E. S. Conway. *Ry R* 57:773-4 D 11 '15

Merit vs. favoritism in gaining promotion in mining. *Coal Age* 9:954-5; 10:157-8, 397-8, 437-8, 511, 555, 899 Je 3, Jl 22, S 2-9, 23-30, N 25 '16

Method for identifying workmen. *Factory* 17:137 Ag '16

Need for encouraging the employes to think. *Textile World* 51:4927+ N 18 '16

Opening up dead-end jobs. *Factory* 16:342 Ap '16

Physician in industry. M. W. Alexander. *Am Ind* 16:15-17 Ap '16; Same. *Iron Tr R* 59:777-9 O 19 '16; Same abr. *Am Gas Light J* 104:194-5 Mr 27 '16

Preparedness—the human element. J: H. Linn. *Ry Mech Eng* 90:449-50 S '16

Retaining employes an important factor in efficiency. *Inland Ptr* 56:673 F '16

Savings plan for New England power employees. *Elec W* 68:972 N 11 '16

Ten business commandments. *Metal Work* 84:762 D 17 '15

See also Apprentices; Arbitration, Industrial; Bonus system; Corporations—Employees; Efficiency, Industrial; Foremen; Industrial betterment; Labor and laboring classes; Railroads—Employees; Scientific management; Street railroads—Employees; Welfare work in industry

Employees, Training of

Educating workers for higher efficiency. F. B. Gilbreth and L. M. Gilbreth. *Il Iron Age* 96:1530-3 D 30 '15

Man building. E. M. Herr. *Ry Age* 60:297-9 F 18 '16

Relation of the manager to the training of employes. L. Galloway. *Gas Age* 38:569-71 D 1 '16

Train your men for steady jobs. B: A. Franklin. *Ind Management* 52:392-8 D '16

See also Apprentices; Corporation schools; Industrial education; Schools and shops, Cooperation of

Employers' associations

Closer co-operation between employers. G: Pope. *Am Ind* 17:12-14 S '16

Federation of employers' organizations. E. Constantine. *Am Ind* 16:17-18 Je '16

National employers' association. C: C. Gilbert. *Am Ind* 17:19 N '16

Employers' liability

Federal employers' liability act. T. W. Reath. *Ry Age* 60:1140-1 My 26 '16

See also Accidents, Industrial; Workmen's compensation

Employment systems

Care in selection of employees and good management methods have increased factory output 42 per cent in five years. *Am Gas Light J* 105:116-17 Ag 21 '16

Civil service method of selecting employes. L. F. Fuld. *Am Ind* 16:33 Ap '16

Employing men for the steel mill. A. H. Young. *Iron Age* 98:1108-9 N 16 '16

Employing methods that make good workers. R. T. Kent. *Iron Age* 98:244-7 Ag 3 '16

Employment and service. O: P. Geier. *Iron Age* 98:1123 N 16 '16

Employment department—its functions and scope. H. L. Gardner. *Textile World* 51:2675, 2677 Je 3 '16

Fitting men instead of firing. *Il Factory* 16:221-3 Mr '16

High cost of labor that comes and goes. *Factory* 17:653-6 D '16

Hiring and firing employes as a fine art. M. W. Alexander. *Gas Age* 38:489-90 N 1 '16

How we lifted hiring out of the rut. A. K. Baer. *Il Factory* 16:445-6 My '16

Improving the personnel. H. G. Smith. *Iron Age* 97:1198 My 18 '16

Making motor trucks in the White plant, Cleveland. F. L. Prentiss. *Iron Age* 98:347 Ag 17 '16

Scientific selection of employees. P. W. Gerhardt. *Elec Ry J* 47:943-5, 996-7 My 20-27 '16; Abstract. *Eng M* 51:605-6 Jl '16

Selecting men for jobs. H. Schneider. *Eng M* 51:420-31 Je '16

Selection of employees. G: Lawson. *Elec Ry J* 47:1046-7 Je 3 '16

Standardizing the characteristics of men. W: F. Kemble. *Il Ind Management* 52:308-23 D '16

Testing the fitness of your employees. W: F. Kemble. *Il Ind Management* 52:149-64 N '16

When your workmen help you hire. C: Harris. *Il Factory* 16:121-3 F '16

See also Employees

Empress of Ireland (steamship)

Notes from a collision investigation. J: Reid. *Il Engineer* 121:384-5 My 5 '16

Emulsions

Application of centrifugal force to suspensions and emulsions. E. E. Ayres, jr. *Met & Chem Eng* 14:500-2 My 1 '16

Emulsions and emulsification. F. G. Donnan. *Sci Am S* 81:119 F 19 '16

Enamel and enameling

California sanitary enameled ware plant. *il Metal Work* 86:273-4 S 1 '16

Electric ovens in an automobile plant. *il Iron Age* 98:1215-19 N 30 '16

How enameled kitchen ware is made. *plan Iron Tr R* 59:1096-7 N 30 '16

Energy. See Force and energy; Free energy; Power

Engine cylinders. See Cylinders (engines)

Engine houses. See Roundhouses

Engineer corps. See United States—Army

Engineering

Business in engineering; abstracts. F. G. Hatch. *Engineer* 121:60 Ja 21 '16; *Sci Am S* 81:275 Ap 29 '16

Efficient means for establishing a connection between science and industry; abstract. A. Blondel. *Am Soc M E J* 38:941 N '16

Engineering in antiquity. J. M. Burnham. *Ry R* 59:94 J1 15 '16; Same. *Am Soc M E J* 38:580 J1 '16

Industrial progress of sixty years; the lifetime of the Iron age. *il Iron Age* 97:31-8 Ja 6 '16

Institution of civil engineers; presidential address. M. Fitzmaurice. *Engineer* 122:424-5, 434 N 10-17 '16

Limitations of engineering as an exact science. *Eng Rec* 71:368 S 23 '16

\$100 in prizes for engineers' papers. *Eng & Contr* 46:281 S 27 '16

Prizes offered for best articles on engineering subjects. *Eng N* 76:805 O 26 '16

Retrospect of the year 1915; engineering. *Sci Am* 114:6 Ja 1 '16

Science in its relation to engineering. J. A. Brashear. *Am Soc M E J* 38:1-4 Ja '16; Abstract. *Elec W* 66:1304 D 11 '15; Abstract. *Iron Age* 96:1361 D 9 '15

Year's review. *Power* 43:19-22 Ja 4 '16

See also Aeronautics; Aqueducts; Arches; Architecture; Blasting; Breakwaters; Bridges; Building; Building materials; Canals; Civil engineering; Curve plotting; Curves; Docks; Drainage; Dredging; Drilling and boring (earth and rocks); Earthwork; Electric engineering; Embankments; Engineers; Engines; Foundations; Grouting; Harbors; Haulage; Irrigation; Machinery; Marine engineering; Mechanical engineering; Mechanical handling; Mechanics; Mensuration; Military engineering; Mining engineering; Railroad engineering; Railroads—Construction; Rivers; Roads; Sanitary engineering; Sea walls; Shore protection; Specifications; Standards; Engineering; Steam engineering; Steam engines; Strains and stresses; Strength of materials; Subways; Surveying; Tunnels and tunneling; Walls; Water supply; Water supply engineering; Winter construction

Estimates

Contractors should not rely on engineers' estimates. *Eng N* 75:235, 476-8, 621 F 3, Mr 9, 30 '16

See also Quantity system of estimating

Examinations

Examination questions for engineer-draftsman. *Eng N* 74:1107 D 9 '15

Study and teaching

Educating the present student and future buyer of technical products. F. D. Furman. *Stevens Ind* 33:109-21 Ap '16

Wentworth institute power plant course. C. L. Hubbard. *il Power* 44:152-5 Ag 1 '16

See also Engineering colleges; Engineering education

Tables, calculations, etc.

Differential equations in engineering. E. J. Berg. *Mach* 22:399 Ja '16

Error in formula for sag. S. F. Wilson. *Power* 43:891 Je 20 '16; Same. *Eng & Min J* 102:188 J1 22 '16

Something about formulas. H. G. Gibson. *Power* 44:317-18 Ag 29 '16

Terminology

See Technical terms

China

Installing mechanical equipment with limited facilities for the Bureau of engraving and printing. *il Heat & Ven* 12:40-2 D '15

South America

Opportunities for our engineers in South America. E. L. Cortiell. *Am Ind* 17:21-2 O '16

United States

Engineering in America in 1915. *Engineer* 121:200, 240-1, 252 Mr 3, 17-24 '16

Engineering maxima in the United States. *Sci Am* 114:663 Je 24 '16

Engineering, Civil. See Civil engineering

Engineering, Electrical. See Electric engineering

Engineering, Marine. See Marine engineering

Engineering, Military. See Military engineering

Engineering, Mining. See Mining engineering

Engineering, Railroad. See Railroad engineering

Engineering, Sanitary. See Sanitary engineering

Engineering, Steam. See Steam engineering

Engineering and mining journal

Fiftieth anniversary. *Eng & Min J* 101:614 Ap 1 '16

Engineering colleges

Dedication of new Massachusetts institute buildings. *il Elec R & W Elec'n* 68:1111 Je 17 '16

Developing the human side in industry. F. H. Rindge, jr. *Iron Age* 97:1264-5 My 25 '16

Engineering colleges and the war. R. M. Walmsley and C. E. Larard. *Engineer* 120:595-6; Discussion. 596-7 D 24 '15

Engineering students number over thirty thousand. *Eng & Min J* 102:231 J1 29 '16; Same. *Eng N* 76:139 J1 20 '16; Same. *Power* 44:192 Ag 8 '16

Mentor system used at University of Michigan. *Eng Rec* 73:711-12 My 27 '16

New Technology. *il plan Eng & Min J* 101:1077-9 Je 17 '16

Registration in civil engineering is decreasing. *Eng Rec* 72:766 D 18 '15

Suggestions for electrical research in engineering colleges. V. Karapetoff. *Am Inst E E* Pro 35:591-606 My '16; Discussion. 35:1614-26 O '16

Universities and the industries; symposium. *J Ind & Eng Chem* 8:59-66 Ja '16; Discussion. 8:441-51 My '16

University and industry; meeting of New York section of American chemical society. *Met & Chem Eng* 14:413-15 Ap 15 '16

University of Iowa combines engineering and business courses. *Eng Rec* 74:108 J1 22 '16

Where highway engineering may be studied. *Concrete* 9:166 N '16

Why is registration in civil engineering decreasing? *Eng Rec* 73:25-6, 57-9, 88-90, 155-6, 185-7, 260; 291-2 Ja 1-15, 29-F 5, 19-26 '16

See also Engineering laboratories; Massachusetts institute of technology

Engineering contracts. See Contracts

Engineering education

Address at Columbia engineering alumni dinner. W. H. Burr. *Eng N* 75:960 My 18 '16

Broader training for the engineer. A. C. Humphreys. *Stevens Ind* 33:7-28 Ja '16

Can the human side of engineering be taught. F. H. Rindge, jr. *il Ind Management* 52:206-12 N '16

Character study of the American engineer. *Heat & Ven* 13:29-31 My '16

Co-operative engineering education in England. *Eng Rec* 74:698 N 18 '16

Co-ordinating technical and business training. N: T. Ficker. *Ind Management* 52:376-80 D '16

Creative imagination in engineering education. W: T. Carpenter. *Eng N* 75:704 Ap 13 '16

Engineering education—Continued

- Does present-day college education produce accuracy and thoroughness? D. W. Mead; and others. Eng Rec 73:607-9, 780, 809-10, 842; 74:56 My 6, Je 10-24, Jl 8 '16
- Educational aspects of illuminating engineering. F. K. Richtmyer. Illum Eng Soc 11:851-72; Discussion. 872-81 no 8 '16
- Engineering-education faults. W. M. Wilson. Eng N 74:1211-12 D 23 '15; Same. Sci Am S 81:117 F 19 '16
- Engineering schools and industrial methods. H. L. Gantt. Eng M 51:161-6 My '16
- Engineers' qualifications and technical education. A. Marston. Eng N 75:767-8 Ap 20 '16
- How can professional misfits in engineering be avoided? W. M. Wilson. Eng N 76:388-9 Ag 31 '16
- How co-operative courses train young engineers. H. A. Stringfellow. Eng N 75:63-4 Ja 13 '16
- How the college can train managers. J. W. Roe. Eng M 51:537-42 Jl '16
- Improving engineering education. C. R. Mann. Eng N 75:1246-7 Je 29 '16
- Modern engineering education. E. Orton, jr. Sci Am S 81:147 Mr 4 '16
- Present-day knowledge of metals and the engineer and suggestions for a systematic course of fundamental instructions. C. E. Chase. Sci Am S 82:162-3 S 9 '16
- Public speaking made part of engineering course. M. P. Dowdell. Eng Rec 74:196 Ag 12 '16
- Shop instruction at the University of Illinois. B. W. Benedict. Iron Tr R 59:377 Ag 24 '16
- Universities and the industries. H. P. Talbot. J Ind & Eng Chem 8:61-3 Ja '16
- Vocational guidance for the engineering student. S. L. Ruggles. Eng N 76:713-14 O 12 '16
- What can best be done to advance the interests of the engineering profession in the United States? J. A. L. Waddell. Eng Soc W Pa 32:477-88 Jl '16; Excerpts. Eng & Contr 46:387-8 N 1 '16; Excerpts. Heat & Ven 13:13-17 N '16; Discussion. Eng Soc W Pa 32:523-5 + Jl '16; Heat & Ven 13:17-19 N '16
- What does engineering education contribute to scientific progress and invention? V. Karapetoff. Sibley J 30:175-6 F '16
- What is an engineer? D. R. Shearer. Eng Rec 73:653 My 13 '16
- What is the road to progress in engineering education? C. A. Holden. Eng N 76:873-4 N 9 '16
- What manufacturers look for in engineering graduates. E. H. Fish. Eng M 51:673-7 Ag '16
- See also* Apprentices; Engineering—Study and teaching; Engineering colleges; Engineering laboratories; Industrial education; Railroad education; Technical education
- Engineering ethics**
- Code of ethics for the Western society of engineers. Eng & Contr 45:255-6 Mr 15 '16; Excerpts. Eng N 75:579-80 Mr 23 '16
- Government and student free engineering service. Eng N 75:1052-3, 1056; 76:36-7, 180-1 Je 1, Jl 6, 27 '16
- Oregon engineer discusses personal advertising. Eng Rec 74:434 O 7 '16
- Proposed code of ethics. W Soc E J 21:1-6 Ja '16
- Report of a special committee on professional ethics and standard fees, presented at the annual meeting of the Iowa engineering society. Eng N 75:453 Mr 9 '16
- Unethical competition for engineering work. T. G. Dabney. Eng N 75:1245 Je 29 '16
- What purpose does a code of ethics serve? Eng N 75:571 Mr 23 '16
- Engineering experiment stations**
- See also* Engineering laboratories; Industrial research—Newlands bill
- Engineering laboratories**
- Duties of a laboratory in a mechanical engineering works. Engineer 121:178-9 F 25 '16
- Duties of the works laboratory. H. L. Heathcote. Engineer 121:116 F 4 '16
- Engineering experiment station of the University of Illinois. E. B. Paine. Am Inst E E Pro 34:2421-7 O '15; Discussion. 35:504-5 Ap '16
- Equipment for testing at Carnegie institute of technology. W. Trinks. Iron Tr R 58:652-5 Mr 23 '16
- Laboratories of the Pennsylvania public service commission. H. E. Ehlers. Il plans Am Gas Light J 104:243-5 Ap 17 '16
- Laboratory tests of a consolidation locomotive. E. C. Schmidt, J. M. Snodgrass and R. B. Keller. Il diags Ill U Eng Exp Sta Bul 82:68-85 '15
- U. S. naval engineering experiment station at Annapolis, Md. W. L. DeBaufre. Il Sci Am S 81:72-4 Ja 29 '16
- See also* Aerodynamic laboratories; Electric laboratories
- Engineering law**
- See also* Boilers—Laws; Building laws; Contracts; Electric engineering—Laws; Engineers—Licenses; Heating—Laws; Plumbing laws and regulations; Railroad law; Sewerage—Laws; Ventilation—Laws; Waterworks—Laws
- Engineering libraries**
- Making engineering libraries of greatest benefit. K. C. Walker. Eng N 76:550 S 21 '16
- Work of the Detroit Edison company's library. M. A. Carabin. Special Libraries 7:133-40 O '16
- See also* Engineering societies' library
- Engineering literature**
- Classification and filing of engineering data. K. C. Walker. Int Marine Eng 21:295-7 Je '16
- Expert dealer in second-hand engineering books. Eng N 75:316 F 17 '16
- Expert dealer in second-hand engineering books. K. C. Walker. Eng N 75:508 Mr 16 '16
- See also* Engineering periodicals; Engineering reports
- Engineering materials**
- See also* Building materials; Iron; Steel
- Engineering offices**
- City engineer's offices, San Francisco. plan Eng N 75:1048 Je 1 '16
- Model engineering offices, city of Dallas, Tex. Il plan Eng N 75:698-9 Ap 13 '16
- Management**
- Drafting-room practice in a departmentalized shop. Il diags Eng N 76:218-20 Ag 3 '16
- How to manage brain workers. H. G. Tregillus. Factory 17:23-4 Jl '16
- Engineering organization**
- See also* Organization in industry; Railroads—Management
- Engineering periodicals**
- College course for the study and discussion of engineering periodicals. H. V. Bozell. Elec W 68:536 S 9 '16
- Discussion as a means of practical education. Coal Age 9:375 F 26 '16
- Expert dealer in second-hand engineering books. Eng N 75:316 F 17 '16
- Expert dealer in second-hand engineering books. K. C. Walker. Eng N 75:508 Mr 16 '16
- Filing periodical literature. F. E. Weise. Ry R 57:757 D 11 '15
- How the engineer should use the technical journal. R. Fleming. Eng N 76:862 N 2 '16
- Power-plant magazines. A. J. Dixon. Power 44:380-1 S 12 '16
- Reading of technical journals necessary. H. S. Cooper. Elec Ry J 48:1011 N 11 '16
- See also* Trade papers
- Engineering records**
- Construction engineers' field and office diary. J. C. L. Fish. Eng N 75:110-12 Ja 20 '16
- Engineering reports**
- Report-writing course. Elec Ry J 46:1204 D 13 '15
- Engineering research.** *See* Industrial research
- Engineering service.** *Free.* *See* Engineering ethics
- Engineering societies**
- Affiliated technical societies of Atlanta and what their example teaches. Eng & Contr 46:167-8 Ag 23 '16
- Affiliation of local engineering societies. Eng & Contr 46:148 Ag 16 '16

Engineering societies—Continued

- Aims of American water-works association. N: S. Hill, jr. Eng N 75:1152-4 Je 15 '16
- A. I. E. E. and the technical committees. D: B. Rushmore. il diags Am Inst E E Pro 35:113-20 F '16
- Boosting and protective unions and professional societies. O. F. Gayton; A. Kneisel. Power 43:266-7 F 22 '16
- Civil engineers headquarters to be in Engineering societies building; memorandum agreement. Am Inst E E Pro 35:sup203-7 S '16
- Comparative growths of membership in the four national societies; chart. Am Soc M E J 38:57 Ja '16
- Conference on engineering co-operation at Chicago. Eng N 75:771-2 Ap 20 '16
- Co-operate, but to what end? F. H. Newell; T. M. Ripley. Eng N 75:956-7 My 18 '16
- Co-operation among technical societies; its limitations. Eng N 75:667-8 Ap 6 '16
- Co-operation by engineers; new organization to take part in civic affairs. Iron Age 98:779 O 5 '16
- Co-operation conference. C. E. Drayer. Eng N 75:1100-1 Je 8 '16
- Co-operation in engineering societies. Power 43:600-1 Ap 25 '16
- Co-operation of engineering activities by states. P. Hansen. Eng N 75:789 Ap 27 '16
- Co-operation program for engineers. Heat & Ven 13:56 Je '16
- Defense association of engineers is proposed. W: R. King. Eng Rec 73:507-8 Ap 15 '16
- Employment departments of the national engineering societies. B. Stoughton. Iron Age 97:733 Mr 23 '16
- Engineering co-operation. C. E. Drayer. Eng N 75:556-7 Mr 23 '16; Same. Eng & Contr 45:303-4 Mr 29 '16; Same cond. Iron Tr R 58:759-60 Ap 6 '16
- Engineering society—its past, present and future activities; with discussion. E. McCullough. W Soc E J 21:697-708 O '16
- Engineers in get-together movement. Metal Work 85:594 Ap 28 '16
- Forty-two societies represented at Chicago conference. Eng Rec 73:561-2 Ap 22 '16
- How can engineering societies discipline members? Eng N 75:1195-6 Je 22 '16
- How to increase the usefulness of local societies. Eng Rec 73:322-3 Mr 4 '16
- Letters concerning a union of the two water-works societies. Eng & Contr 46:402-4 N 8 '16
- National engineering societies and their local sections. Eng N 76:806-7 O 26 '16
- National society membership and qualifications compared. Eng Rec 73:245 F 19 '16
- Nineteen engineering societies, 52,677 members, to be housed in one building. Eng & Contr 46:167 Ag 23 '16
- Presidents of fourteen state societies of engineers. Eng & Contr 45:sup37-40 My 3 '16
- Presidents of the four national engineering societies. Eng N 75:216-21 F 3 '16
- Progress in society co-operation and publicity. Eng Rec 73:4-5 Ja 1 '16
- Qualifications for membership in engineering societies. Eng N 75:456 Mr 9 '16
- Relation of engineering societies to legislation and public affairs. F. H. Newell. Am Soc M E J 38:804 O '16
- Relation of engineering societies to legislation and public affairs. H: Hess. Am Soc M E J 38:641-2 Ag '16
- 2d conference of the committee on engineering co-operation, Chicago, April 13-14, 1916. Eng & Contr 45:375 Ap 19 '16
- Separate organization of engineers for public work inadvisable. E. T. Thurston. Eng & Contr 45:108-9 F 2 '16
- Service for the society. E. M. Blake. Boston Soc C E J 3:171-7 Ap '16; Excerpt. Eng N 75:874-5 My 11 '16
- Service of engineering societies. A. Kneisel. Eng Rec 73:780 Je 10 '16
- Service of engineering societies. F. H. Newell. Eng Rec 73:620 My 6 '16
- Service of society to its members is urged. N. S. Hill, jr. Eng Rec 73:766 Je 10 '16
- Shall there be a federation of all civil engineering societies? Eng & Contr 46:400-1 N 8 '16
- Should engineering societies pass on public questions? H. J. Duffield. Eng N 75:818 Ap 27 '16
- Should engineering societies pass on public questions? S. G. Porter. Eng N 75:1148-9 Je 15 '16
- Should technical societies try to influence legislation? Eng N 76:278-9 Ag 10 '16
- Solving the problem of local engineering associations. Eng N 75:5 Ja 6 '16
- Welcome the American society of civil engineers. Am Soc M E J 38:645-6 Ag '16
- What the Engineering society owes to its members. F. H. Newell. Eng & Contr 44:497-8 D 29 '15
- See also Plumbers' associations; Railroad associations; also names of societies, e.g. American society of mechanical engineers, National electric light association, United engineering society
- Engineering societies, Association of.** See Association of engineering societies
- Engineering societies' building, New York**
Engineering societies' building the home of three national organizations. Eng Rec 73:170-1 F 5 '16
- New columns and trusses to support added stories in Engineering societies building. diags Eng Rec 74:412-14 S 30 '16
- Engineering societies' library, New York**
Dr. Douglas' gift and its significance. Eng Rec 74:638-9 N 25 '16
- Engineers' library endowment. Eng & Min J 102:952 N 25 '16
- Engineering society of Wisconsin**
8th annual meeting, Madison, Feb. 25-26, 1916. Eng N 75:436-7 Mr 2 '16
- Engineering standards.** See Standards, Engineering
- Engineers**
Address at annual meeting of Boston society of civil engineers. C: R. Gow. Boston Soc C E J 3:125-34 Ap '16; Excerpts. Eng N 75:840 My 4 '16
- Age and experience vs. youth and education. F. Williams. Eng & Min J 101:1081 Je 17 '16
- American association of engineers discusses means of improving the status of the engineer. Elec W 66:1391 D 18 '15
- American engineers for Canadian work. Eng Rec 74:472 O 14 '16
- Applicant's difficulty. R. Fleming. Eng N 75:1068-9 Je 8 '16
- Architect vs. engineer. D. H. Maury. Eng Rec 73:619-20 My 6 '16
- Architect vs. engineer. M. Deutsch. Eng Rec 73:810 Je 17 '16
- Architect vs. engineer, and a sound view on licensing. D. R. Shearer. Eng Rec 73:715-16 My 27 '16
- Broader duties of the engineer. J. C. Ralston. Assn Eng Soc J 55:220-30 D '15
- Broader training for the engineer. A. C. Humphreys. Stevens Ind 32:294-315 O '15
- Call to a conference on co-operation. F. H. Newell. Eng & Contr 45:134 F 9 '16
- Canadian engineers object to appointment of aliens. Eng N 76:711 O 12 '16
- Canadians object to choice of American engineer. Eng Rec 74:380 S 23 '16
- Character study of the American engineer. Heat & Ven 13:29-31 My '16
- City manager; a new opportunity for engineers. G. C. Cummin. W Soc E J 21:565-70; Discussion. 570-87 S '16
- Comment on a co-operative organization of engineers. A. P. Melton. Eng & Contr 45:214-15 Mr 1 '16
- Comment on a new association of engineers. J. B. Thompson. Eng & Contr 45:157-8 F 16 '16
- Concerning a new organization of engineers. F. W. Harris. Eng & Contr 45:135-6 F 9 '16
- Co-ordinated America demands participation of engineers. T: C. Desmond. Eng Rec 74:497-8 O 21 '16
- Destroying the public's confidence in the engineer. Am Gas Light J 105:201 S 25 '16

Engineers—Continued

- Details often overlooked by engineers. A. Stucki. Eng Soc W Pa 32:1-12; Discussion. 13-19 F '16
- Development of auxiliary forces of reserve officers drawn from the professional class. W. B. Parsons. Elec W 67:248 Ja 29 '16
- Engineer. F. Crane. Am Soc M E J 38:813-14 O '16; Same. Eng Rec 74:515 O 21 '16; Same cond. Eng & Contr 46:400-1 N 8 '16
- Engineer and public affairs. W. A. DelMar. Elec W 68:237 J1 29 '16
- Engineer and the business of fire insurance. J. P. Gray. Am Soc M E J 38:209-10 Mr '16
- Engineer in the ascendancy. Iron Age 98:781 O 5 '16
- Engineer reserve outlined at convention of National security league. W. B. Parsons. Eng Rec 73:178-9 F 5 '16
- Engineering co-operation. C. E. Drayer. Eng N 75:556-7 Mr 23 '16; Same. Eng & Contr 45:303-4 Mr 29 '16; Same cond. Iron Tr R 58:759-60 Ap 6 '16
- Engineering expression on public questions. Eng Rec 74:429 O 7 '16
- Engineers adopt preparedness resolutions. Elec R & W Elec N 68:574 Ap 1 '16; Same. Elec W 67:752 Ap 1 '16
- Engineers and contractors are vital factors in plans for military preparedness. L. Wood. Eng Rec 72:739-40 D 11 '15
- Engineers and other experts from a newspaper standpoint. Eng & Contr 45:97 F 2 '16
- Engineers and the law. Sci Am S 81:368 Je 3 '16
- Engineers and the navy. K. L. Martin. Stevens Ind 33:122-5 Ap '16
- Engineers and the new nationalism. D. R. Yarnall. Eng Rec 74:210 Ag 12 '16
- Engineers and the new nationalism. F. A. Kellor. Eng Rec 74:12-13 J1 1 '16
- Engineers as expert witnesses. A. J. Hammond. Eng & Contr 45:229 Mr 8 '16
- Engineers as readers and writers of fiction. R. Fleming. Eng N 76:940 N 16 '16
- Engineers in politics. C. E. Drayer. Am Soc M E J 38:301-5 Ap '16
- Engineers in politics. T. C. Desmond. Eng N 76:445-6 S 7 '16
- Engineers in the construction field. F. B. King. Eng & Contr 45:276 Mr 22 '16
- Engineers investigate charges against city engineer. Eng Rec 73:770-1 Je 10 '16
- Engineers must learn to sell their ability. Eng Rec 74:85-6 J1 15 '16
- Engineers' qualifications and technical education. A. Marston. Eng N 75:767-8 Ap 20 '16
- Engineer's work puts community building on sound economic basis. J. Z. George. Eng Rec 73:605-6 My 6 '16
- Experience with applications for employment. C. A. Bock. Eng N 76:258-9 Ag 10 '16
- Future of the engineering profession. A. J. Himes. Am Soc M E J 38:300-1 Ap '16
- Graduates in engineering hold to profession. Eng Rec 74:194 Ag 12 '16
- Ideals for college-made men. Coal Age 9:464 Mr 11 '16
- Illogical methods of rating engineering ability. Eng & Contr 45:373-4 Je 28 '16
- Increasing influence of the engineer. J. J. Hines. Power 43:635-6 My 2 '16
- Industrial preparedness inventory; personnel of the groups of five directors for each state. Iron Age 97:946-7 Ap 20 '16; Same. Iron Tr R 58:883, 885 Ap 20 '16
- Investment of savings for engineers. J. Berg. Eng Rec 73:716 My 27 '16
- Judging the qualification of men for engineering positions. Eng & Contr 45:402 My 3 '16
- Latin-American opportunities. Eng Rec 74:22, 110 J1 1, 22 '16
- Manhood and technical qualities should be separated. A. Marston. Eng Rec 73:764 Je 10 '16
- Marketing engineering ability. C. F. Harding. Eng N 76:862-3 N 2 '16
- Need of more adequate training for engineers. J. E. Aldred. Am Gas Light J 105:71 J1 31 '16
- New York engineer positions standardized. Eng N 75:654-5 Ap 6 '16
- Pirate pills for engineers. L. M. Cox. Eng M 51:548-52 J1 '16
- President asks help of engineers for national defense. Eng Rec 73:129 Ja 22 '16
- Presidential address; delivered before American electrochemical society. L. Addicks. Met & Chem Eng 14:475-6 My 1 '16
- Qualifications for engineering work. Eng Rec 73:342-3 Mr 11 '16
- Rating the qualifications for success in engineering. Eng N 75:425, 620-1, 908-9 Mr 2, 30, My 11 '16
- Relation between engineers and contractors. J. W. Rollins. Eng Soc W Pa 32:121-46; Discussion. 146-85 Mr '16
- Relations between assistants and chief engineers. P. G. Melbourne. Eng N 75:332 F 17 '16
- Relations between the architect and the engineer. Concrete 8:182-3 Ap '16
- Restricted use of term engineer advocated. N. M. Stineman. Eng Rec 73:546 Ap 22 '16
- Sales engineer and his relation to production and machine design. A. J. Baker. Il Am Soc M E J 38:855-8 N '16; Same. Iron Tr R 59:318-23 Ag 17 '16; Same cond. Iron Age 97:1054-7 My 4 '16
- Should engineering societies pass on public questions? S. G. Porter. Eng N 75:1148-9 Je 15 '16
- Success in engineering. F. Lavis. Eng N 75:1005 My 25 '16
- Talk to young engineers. E. W. Rice, jr. Gen Elec R 19:1104-6 D '16
- Teaching the public that engineering work requires time. Eng & Contr 45:75-6 Ja 26 '16
- Technical students should receive military instruction. W. Clay. Eng Rec 73:179-80 F 5 '16
- Thirty-one thousand engineering students in 1911 and one hundred and twenty thousand engineers in 1910. Eng & Contr 46:147 Ag 16 '16
- Unprecedented demand for men. F. P. McKibben. Eng Rec 74:55 J1 8 '16
- What can best be done to advance the interests of the engineering profession in the United States? J. A. L. Waddell. Eng Soc W Pa 32:467-510 J1 '16; Excerpts. Eng & Contr 46:387-8 N 1 '16; Excerpts. Heat & Ven 13:13-17 N '16; Discussion. Eng Soc W Pa 32:510-64 J1 '16; Heat & Ven 13:17-19 N '16
- What is an engineer? Eng Rec 73:259, 292, 329, 556; 74:10 F 19-Mr 4, Ap 22, J1 1 '16
- What the engineer may expect in Latin America. V. L. Havens. Eng Rec 74:179-80 Ag 5 '16
- Why do not all engineering colleges develop reading habits? Eng & Contr 46:251, 333-4, 423 S 20, O 18, N 15 '16
- See also Civil engineers; Electric engineers; Engineering ethics; Engineering societies; Locomotive engineers; Management engineers; Marine engineers; Mechanical engineers; Mining engineers; Structural engineers; Surveyors

Fees

- Canadian society fixes fees for engineering service. Eng N 75:1183 Je 22 '16

Licenses

- First regular examinations for licensing structural engineers in Illinois. Eng & Contr 46:278 S 27 '16
- Licensing law for engineers and architects needs revision. F. D. Chase. Eng Rec 74:180 Ag 5 '16
- No residence restrictions for engineers. F. W. Green. Eng N 76:565 S 21 '16
- Pennsylvania investigation of licensing engineers. Eng N 75:522-3 Mr 16 '16
- Regulating engineering in the state of Pennsylvania. Eng N 75:484-5 Mr 9 '16
- Structural engineers' license law of the state of Illinois. Eng & Contr 46:360-2 O 25 '16
- Engineers, American association of. See American association of engineers
- Engineers, Marine. See Marine engineers
- Engineers, Western society of. See Western society of engineers
- Enginehouses. See Roundhouses

Engines

- Concerning measurements of the coefficient of cyclic variation; abstract. J. von Rohonyi. *Am Soc M E J* 38:92-3 Ja '16
- How to select prime movers for industrial electrical generating plants. H. T. Luscomb. *Eng M* 51:705-16 Ag '16; Abstract. *Am Soc M E J* 38:761-2 S '16
- Reciprocating and rotary principles in prime movers; abstract. D. Clerk. *Am Soc M E J* 38:188 F '16
- Repaired cracked engine frame. G. Rollins. *diag Power* 43:452 Mr 28 '16
- Significant developments in prime movers. W. F. Durand. *Elec W* 67:20-2 Ja 1 '16
- See also* Aeroplane motors; Air engines; Automobile engines; Blowers; Crankpins; Crankshafts; Diesel engines; Fuel; Gas and oil engines; Gas turbines; Governors (machinery); Heat engines; Locomotives; Marine engines; Pistons; Pumping engines; Steam engines; Steam turbines; Tractors; Turbines

Laws and regulations

- California engine safety orders. *Power* 44:256-7 Ag 15 '16

Manufacture

- Electricity in the manufacture of engines. *il Elec R & W Elec'n* 69:11-16 Jl 1 '16
- Making the pattern for an engine frame. E. W. Wallbank and E. F. Weinman. *il diag Foundry* 44:116-17 Mr '16
- English channel**
- Cross-channel communication between England and France—various plans reviewed. *Sci Am S* 82:295 N 4 '16
- English channel tunnel**
- Channel tunnel and other projects. *plan Engineer* 122:388-9, 422-3 N 3-10 '16
- Driving of tunnel beneath English channel awaits British parliament's consent. *diag plan Eng Rec* 74:645-6 N 25 '16

English language

- English in mining schools and universities. *Met & Chem Eng* 14:65 Ja 15 '16
- Imperfections in language. F. H. Teall. *Inland Ptr* 58:92-3 O '16
- See also* Compound words; Proofreading

English language (for foreigners)

- Breaking down the language barrier. J. D. Hackett. *Iron Age* 97:293-4 F 3 '16
- Ford's melting pot. *il Automobile* 35:611 O 12 '16

Engraving

- Art of engraving and embossing. *il Metal Ind n s* 14:160-2, 330-1 Ap, Ag '16 (to be cont)
- Light and shadow in reproductive printing processes. J. St. C. Mc Quilkin and E. M. Keating. *il Inland Ptr* 58:57-60 O '16
- Process engraving. S. H. Horgan. *See* monthly numbers of the *Inland printer*
- See also* Etching; Gems; Lithography; Photo-engraving; Wood engraving

Cost

- Changes in the cost of engraving. *Inland Ptr* 57:666 Ag '16

Engravings

- Paper for artistic printing. D. Hunter. *il Sci Am S* 82:108 Ag 12 '16
- See also* Etchings

Enlistment. See Recruiting and enlistment**Entablature**

- Plan, elevation, and section of faience entablature around the waiting room, the New York Central railroad station at Rochester. *Arch & Bldg* 48; detail sheet 5 My '16

Envelopes

- Aims to end use of envelopes. *Am Ind* 16:38 Jl '16
- Exhibit of envelope corner cards; specimens. *Inland Ptr* 56:640a-640d F '16

Enzymes

- Conditions which affect the activity of proteolytic enzymes in wheat flour. C. O. Swanson and E. L. Tague. *Am Chem Soc J* 38:1098-1109 My '16

- Mechanism of chemical change in living organisms. W. M. Bayliss. *Sci Am S* 82:226-7 O 7 '16

- Studies on enzyme action; corrections. K. G. Falk and K. Sugiura. *Am Chem Soc J* 38:921-2 Ap '16

See also Diastases

Equation of state

- Equation of state for gases and liquids. F. H. MacDougall. *Am Chem Soc J* 38:528-55 Mr '16

Equations, Differential. See Differential equations**Equilibrium, Chemical. See Chemical equilibrium****Equitable building, New York city**

- Electric service in largest office building. R. D. Ward. *il plan Elec W* 67:136-40 Ja 15 '16
- Electrical maintenance methods in a great office building. *il Elec W* 67:206-8 Ja 22 '16
- Gas piping in the Banker's club. C. F. Herington. *plans Am Gas Light J* 104:81-2 F 7 '16
- Heating a tall building. *Metal Work* 85:633 My 12 '16
- Heating and ventilating plant in Equitable building. W. H. Driscoll. *diags Dom Eng* 74:197-200, 229-30 F 12-19 '16; Abstract. *Heat & Ven* 13:38-9 F '16
- Heavy vault floor framed into existing columns in basement of Equitable building. *diags plan Eng Rec* 73:771-2 Je 10 '16

Erbium

- Separation of erbium from yttrium. P. S. Willand and C. James. *Am Chem Soc J* 38:1198-1202 Je '16

Erection of bridges. See Bridges—Erection**Erie, Pennsylvania****Floods**

- Million-dollar project, just started, will remove flood menace at Erie, Pa. F. Gannett. *Eng Rec* 74:236-7 Ag 19 '16

Erie railroad

- Studies in operation. *il Ry Age* 60:939-43 Ap 28 '16

Erolith

- Buttons as a by-product of beer. *Sci Am* 115:423 N 4 '16
- New celluloid substitute. *Sci Am* 114:623 Je 10 '16

Erosion

- Drainage to prevent erosion. B. Brooks. *Sci Am S* 82:45 Jl 15 '16; Abstract. *Eng & Contr* 45:548 Je 14 '16
- Erosion of watersheds and its prevention. B. Brooks. *Am Water Works Assn J* 3:409-14 Je '16
- Fighting gully erosion. W. R. Mattoon. *il Am For* 22:236-7 My '16
- See also* Glaciers

Ertz, Gordon

- Gordon Ertz and his work; reproductions of paintings. *por il Inland Ptr* 56:516+ Ja '16
- Man who heard Washington in Hawaii. *il por Sci Am* 114:83+ Ja 15 '16

Essential oils

- Constituents of oil of cassia. F. D. Dodge and A. E. Sherndal. *J Ind & Eng Chem* 7:1055-6 D '15
- Essential oil of Formosan Hinoki (chamaecyparis obtusa, S. et Z.) wood. S. Uchida. *Am Chem Soc J* 38:699-702 Mr '16
- Essential oil of sugi (cryptomeria japonica) leaves. S. Uchida. *Am Chem Soc J* 38:687-99 Mr '16
- Essential oils and immunity. *Sci Am S* 82:165 S 9 '16
- Nephelometric determination of small amounts of essential oils. A. G. Woodman, R. T. Gookin and L. J. Heath. *J Ind & Eng Chem* 8:128-31 F '16
- New flotation oil: sage brush oil. M. Adams. *Am Inst-Min E Bul* 117:1683-4 S '16; Discussion. 119:1897-9 N '16
- New source of floatative agents. G. H. Clevenger. *il Am Inst Min E Bul* 117:1685-92 S '16; Same. *Eng & Min J* 102:420-4 S 2 '16; Discussion. *Am Inst Min E Bul* 119:1897-9 N '16

Essential oils—Continued

Phases of the citrus by-product industry in California. R. T. Will. flow sheets J Ind & Eng Chem 8:78-86 Ja '16

Utilization of cull Florida citrus fruits. F. A. McDermott. J Ind & Eng Chem 8:136-8 F '16; Same. Sci Am S 81:367-8 Je 3 '16

Volatile oil of calycanthus occidentalis. C. C. Scalione. J Ind & Eng Chem 8:729-31 Ag '16

Volatile oil of euthamia caroliniana (L). Greene. G. A. Russell. Am Chem Soc J 38: 1398-1402 Jl '16

Zingiberol—a new sesquiterpene alcohol occurring in the essential oil of ginger. B. T. Brooks. Am Chem Soc J 38:430-2 F '16

See also Flavoring extracts

Esters

Action of salts with water of hydration and without water of hydration on the velocity of saponification of esters. J. E. L. Holmes and H. C. Jones. Am Chem Soc J 38:105-21 Ja '16

Ester gums or artificial resin esters. C. Ellis and L. Rabinovitz. il diag J Ind & Eng Chem 8:406-10 My '16

See also Oxalic esters; Phenyl esters

Esthetics. See Art**Estimates**

Beating the deacon on the estimate game. Metal Work 85:2-4 Ja 7 '16

Estimating construction costs. F. W. Foote. Eng & Min J 102:857-60 N 11 '16

Estimating hints for the contractor. G. W. Hill. Elec R & W Elec'n 68:198-9 Ja 29 '16

Estimating mill and cabinet work. Bldg Age 38:69-70 F '16

Figuring skylights on the square-foot basis. diags Metal Work 85:218-20 F 11 '16

Gambling in estimating. G. W. Hill. Dom Eng 74:47-8 Ja 8 '16

Specify amount of formwork. S. P. Baird. Eng N 75:613 Mr 30 '16

See also Building—Estimates; Concrete construction—Estimates; Engineering—Estimates; Heating—Estimates; Quantity system of estimating; Roads—Estimates; Sheet metal work, Architectural—Estimates

Etching

Production of etched metal goods. W. Voss. Metal Ind n s 14:74-6 F '16

Etchings**Reproductions**

F. L. Griggs' etchings. il Am Inst Arch J 4: 284-9 Je '16

Ethane

Thermal decomposition of the ethane-propane fraction from natural gas condensate. J. E. Zanetti and E. H. Leslie. J Ind & Eng Chem 8:777-9 S '16

Ether

Determination of small amounts of alcohol and water in ether for anaesthesia. E. Mallinckrodt, jr., and A. D. Alt. diag J Ind & Eng Chem 8:807-12 S '16

Ether (of space)

Does the ether revolve? G. H. Lee. Sci Am 114: 151 F 5 '16

See also Air

Ethers

Mononitro phenyl ethers. H. I. Jones and A. N. Cook. bibliog Am Chem Soc J 38: 1534-50 Ag '16

Ethics, Engineering. See Engineering ethics**Ethics, Professional. See Professional ethics****Eucalyptus**

Eucalyptus oil industry of California. P. W. Tompkins. J Ind & Eng Chem 7:995-7 N '15; Same. Sci Am S 81:288 Ap 29 '16

Mystery of the blue gum and malaria. S. L. Bastin. il Sci Am 115:215 S 2 '16

Europe**Economic conditions**

Economic possibilities of the Danube as a cosmopolitan highway. Sci Am S 82:77 Jl 29 '16

Maps

Notable map of Europe. Sci Am 114:74 Ja 15 '16

European war, 1914-

Naval preparedness and the civilian engineer; review of the war. F. J. Sprague. W Soc E J 21:160-6; Discussion. 192-202 F '16

Retrospect of the year 1915; the world war. Sci Am 114:6 Ja 1 '16

Two years of war in Europe. Sci Am 115:112 Ag 5 '16

See also Soldiers, Disabled; Verdun, France

Aerial operations

Aeronautics in the great war; the captive balloon, and the important work it performs. il Sci Am S 82:216-18 S 30 '16

American aviators with the French army. N. Truslow. il Sci Am 115:203+ S 2 '16

Defence against hostile aircraft. Engineer 120: 603-4 D 24 '15

Mastery of the air vs. control of the sea; Zeppelins as observation towers for the German fleet. L. d'Orcy. il Sci Am 114:637+ Je 17 '16

Balkan states

Strategic moves of the war. map Sci Am 115: 496+ D 2 '16

Campaigns and battles

Modern artillery and individual initiative. Sci Am 115:256 S 16 '16

Strategic moves of the war. Sci Am 111: 265, 306, 322+, 338+, 350, 378, 410, 422, 438-9, 454, 490, 506, 522+; 112:590-1, 609, 628; 113: 28, 42, 62, 78, 94, 140-1, 158-9, 180, 198+, 234, 248, 270, 290, 320+, 338, 358, 378, 396+, 426, 466+, 486+, 518+, 538+, 556; 114:84, 98, 128, 150, 176, 200, 224, 246, 280, 304, 324, 356, 380, 404, 424, 448, 468, 508, 528, 552, 579, 618, 638, 662; 115:13, 41, 60, 84, 99, 116, 152, 172, 190, 209, 240, 260, 300, 320, 350, 368, 388, 408, 436+, 456, 476+, 496+ O 3-D 26 '14, Je 12-Jl 31, Ag 14-N 13, 27-D 25 '15, Ja 15-S 16, 30-D 2 '16

Causes

Science and the war. A. Gradenwitz. Sci Am S 80:381 D 11 '15

Destruction of property

Destruction of historic edifices in Europe. il Sci Am S 81:68 Ja 29 '16

Ruins of Ablain St. Nazaire, France. J. P. Alaux. il Am Inst Arch J 3:516-17 D '15

Shot, shell and soldiers devastate forests. P. S. Ridsdale. il Am For 22:333-40 Je '16

Vessels destroyed and building. Coal Age 9: 1003 Je 10 '16

Economic aspects

After the war. A. B. Johnson. Eng Soc W Pa 32:195-201 Ap '16

Agriculture in France during the war. Sci Am S 81:103 F 12 '16

Analysis of industrial benefits of European war. E. J. Cattell. Textile World 51:2453+ My 20 '16

British view of the great war with special reference to effects on iron and steel. Iron Tr R 59:281-2 Ag 10 '16

Commercial America and the war. E. E. Pratt. Sci Am 114:241+ Mr 4 '16

Digging in for the coming trade war. L. R. Freeman. Eng M 51:493-500 Jl '16

Europe preparing for after the war. J. Barrett. Dom Eng 77:189 N 11 '16

European war and industrial democracy. J. E. Davies. Gen Elec R 19:181-5 Mr '16; Same cond. Textile World 51:2077 Ap 29 '16

German commercial preparedness for peace. J. Armstrong. Sci Am 114:124+ Ja 29 '16

Germany's position after the war. Engineer 120:604 D 24 '15

Great war and steel exports. E. T. Good. Iron Tr R 58:1283 Je 8 '16

How shall manufactures contribute to American industrial progress? abstracts. E. W. Rice, jr. Elec W 68:1040-1 N 25 '16; Iron Age 98:1173-4 N 23 '16

How to prepare industrially. J. Gayley. Iron Age 97:1400 Je 8 '16

Industrial changes in Europe that will affect United States. E. N. Hurley. Dom Eng 76: 434 S 23 '16; Same cond. Am Gas Light J 105: 180 S 18 '16

Industrial considerations after the war. F. W. Reed. Engineer 122:345 O 20 '16

European war—Economic aspects—Continued

Institution of mechanical engineers; president's address. W. C. Unwin. *Engineer* 122: 376 O 27 '16

Labor and industry after the war. F. C. Howe. *Eng M* 51:22-4 Ap '16

Lessons of the war; constitution and functions of an inter-allies committee. *Engineer* 120: 460-1 N 12 '15

Lessons of the war; difficulties in the way of British co-operation in an after-the-war policy. *Engineer* 120:508-9 N 26 '15

Lessons of the war; solving the problems of international trade. *Engineer* 120:532-3 D 3 '15

Power situation in Germany and Austria during the war. *Power* 43:331-3 Je 13 '16; Same. *Sci Am S* 82:15 J1 1 '16

Presidential address. T. H. B. McKnight. *Ry Age* 61:753-4 O 27 '16

Problems due to the war. L. F. Loree. *Ry R* 59:737-8 N 25 '16

Rehabilitation of Europe offers opportunity if American interests co-operate. R. K. Tomlin, jr. *Eng Rec* 74:310-11 S 9 '16

Shipping losses of the warring nations. *il Sci Am* 115:372 O 21 '16

Steel industry in the war zone. H. H. Campbell. *map Iron Age* 98:248-50 Ag 3 '16

Trading gold for bronze pennies and locomotives for copper ore. W. S. Hiatt. *Ry Age* 60: 168-9 Ja 28 '16

War and American chemical industry. R. F. Bacon. *J Ind & Eng Chem* 8:547-53 Je '16

What is the economic loss by the war? *Eng & Min J* 101:328 F 12 '16

What may the iron and steel trades expect when peace is declared in Europe?; views of manufacturers. *Iron Age* 97:28-30, 91-3 Ja 6 '16

What will happen after the war? A. S. Dewing. *Iron Tr R* 59:282 Ag 10 '16

What will happen in world trade after the war. A. B. Johnson. *Ry R* 58:250 F 12 '16; *Abstract, Ry Age* 60:290 F 18 '16

World trade readjustments after the war. S. H. Bunnell. *Iron Age* 98:1101-2 N 16 '16

Bibliography

List of references on the trade of the United States as affected by the war. *Special Libraries* 7:120-6 S '16

Germany

Estimate of German losses. *Sci Am* 114:420 Ap 20 '16

How Germany may fail. *Sci Am* 115:404 N 4 '16

Italy

Fighting above the clouds. *il Sci Am S* 82:276 O 28 '16

Maps

Map of the Balkans showing the approximate position of the fighting line in Serbia on December 8th, 1915. *Sci Am* 113:538 D 18 '15

Medical and sanitary affairs

American Red cross ambulance service in France. N. Truslow. *il Sci Am* 115:324-5 O 7 '16

Automobile dental shop of the French army. J. Boyer. *il Sci Am* 114:446 Ap 29 '16

Bacteriology of wounds in war. *Sci Am S* 81: 58-9 Ja 22 '16

Battlefield sanitation. A. Bateman. *il diags Dom Eng* 77:6-9 O 7 '16

Concussion blindness; one of the typical developments of the war. A. F. Hertz and A. W. Ormond. *Sci Am S* 81:175-6 Mr 11 '16

How French hospital trains help to save the wounded. W. S. Hiatt. *il plans Ry Age* 59: 639-42 O 8 '15; Same. *Sci Am S* 80:390-1 D 18 '15

Making of X-ray tubes in war time. J. Boyer. *il Sci Am* 114:96+ Ja 22 '16

Prevention of trench-foot. *Sci Am S* 81:53 Ja 22 '16

Primitive sanitation in the trenches. *Dom Eng* 74:388 Mr 25 '16

Sanitary provisions in foreign war field. J. Y. Dunlop. *diags Metal Work* 86:434-5 O 6 '16

War cripples in Austria and Germany. *Engineer* 121:64-5 Ja 21 '16

What is done for the wounded. *il Sci Am S* 81:196 Mr 25 '16

See also European war—Relief work

Military equipment

Automatic land cruiser; part played by American company in developing the tanks of French battlefields. W. E. Freeland. *diags Iron Age* 98:694-5 S 28 '16

Consumption of shells. *Engineer* 120:275-6 S 17 '15; Same. *Sci Am S* 81:91 F 5 '16

Medieval revival in warfare. *Eng Rec* 73:503 Ap 15 '16

Medieval revival in warfare. R. P. Elmer. *Eng Rec* 73:780 Je 10 '16

War booty captured by the French in the Somme offensive. *il Sci Am* 115:439 N 11 '16

What Turkey and Bulgaria have to offer their Teutonic allies. *map Sci Am* 114:58 Ja 8 '16

See also Automobiles in war

Naval operations

German official story of the Skagerrack sea fight. *il Sci Am* 115:173+ Ag 19 '16

Great North sea battle. *diags Sci Am* 114:640 Je 17 '16

Jutland sea-fight. *Sci Am* 115:191 Ag 26 '16

Lessons of the battle of Skagerrack. G. Dewey. *Sci Am* 115:9 J1 1 '16

Naval action in the North sea. *Engineer* 121: 481-2 Je 9 '16

Naval battle of the Skagerrack; how the engagement is viewed in Germany. Z. S. Hollweg. *Sci Am S* 82:138-9 Ag 26 '16

Naval losses of the allies. *il Sci Am* 114:244-5 Mr 4 '16

Naval losses of the Germans and their allies. *il Sci Am* 114:284-5 Mr 11 '16

True story of the Jutland fight. *Sci Am* 115: 76 J1 22 '16

See also European war—Submarine operations

Personal narratives

Survivor's impressions of the Sussex disaster and observations in London and Petrograd. E. H. Huxley. *il Sci Am* 114:510-11+ My 13 '16

Prison life

Feeding the prisoners of war. *Sci Am* 114:639 Je 17 '16

Relief work

Friendship corners of French railway stations. W. S. Hiatt. *il Ry Age* 61:59-60 J1 14 '16

See also European war—Medical and sanitary affairs; Soldiers, Disabled

Results (forecasts)

Russia, the ultimate decisive factor in the war. *Sci Am* 114:634 Je 17 '16

See also European war—Economic aspects

Rumania

Strategic moves of the war. *il map Sci Am* 115:240, 368, 436+ S 9, O 21, N 11 '16

Russia

Russia, the ultimate decisive factor in the war. *Sci Am* 114:634 Je 17 '16

Submarine operations

German submarine raid off our coasts. *Sci Am* 115:364 O 21 '16

Law of search and seizure on the high seas. *Sci Am* 115:384 O 28 '16

Two years of submarine warfare. *Engineer* 122:342-3, 384-5 O 20, N 3 '16

Trench newspapers

Newspapers that are printed within gun range of the enemy. J. Boyer. *il Sci Am* 114:665+ Je 24 '16

European war and science

International scientific relations after the war. *Sci Am* 115:316 O 7 '16

Euthamia caroliniana (L.) Greene

Volatile oil of *euthamia caroliniana* (L.). Greene. G. A. Russell. *Am Chem Soc J* 38: 1398-1402 J1 '16

Evaporation

Constitution and fundamental properties of solids and liquids. I. Langmuir. *Am Chem Soc J* 38:2249-63 N '16

Evaporation -Continued

- Sensitive water-level recorder. E. J. Hoff. *il* diags Eng N 76:974-5 N 23 '16
 Vaporization of motor fuels. P. S. Tice. *Horseless Age* 37:434-7 Je 1 '16
 Water-evaporation studies by Weather bureau. B. C. Kadel and C. Abbe, jr. *il* plan Eng N 76:200-1 Ag 3 '16
See also Distillation; Drying apparatus

Evaporators

- Capacity and economy of multiple evaporators; abstracts. E. W. Kerr. *Am Soc M E J* 38:315, 539-48 Ap, Jl '16; *Met & Chem Eng* 14:603-8 My 15 '16; *Discussion. Am Soc M E J* 38:548-51 Jl '16
 Heat-transmitting tubes for evaporators. diags *Am Soc M E J* 38:840-1 O '16
 Manufacture of tannin extracts and the use of a new evaporator. *il* *Met & Chem Eng* 15:361-2 S 15 '16
 Specifications for single and multiple effect evaporators. O. Mantius. *Met & Chem Eng* 15:449-50 O 15 '16
 Theory of multiple evaporators. P. H. Parr. *Engineer* 121:146-7 F 18 '16

Evening and continuation schools

- Evening engineering school. *Power* 44:62 Jl 11 '16
 Night school helps contractor's foremen and job. *Eng Rec* 73:430 Mr 25 '16
 Social influence of continuation schools. C. McCarthy. *Am Ind* 17:19 S '16

Everglades

- Reclaiming the Everglades of Florida. D. A. Willey. *il* *Sci Am* 115:258-9 S 16 '16

Evergreens

See also Coniferae; Douglas fir; Fir; Pine

Everson, Mrs. Carrie Jane Billings, 1842-1914

- Biographical sketch, with reprint of flotation patent. pors Eng & Min J 101:129-32 Ja 15 '16
 Carrie Jane Everson and the flotation process. H. C. Parmelee. pors *Met & Chem Eng* 14:67-9 Ja 15 '16
 Sketch. Eng & Min J 100:979 D 11 '15

Examinations

- Economy in study. G. V. N. Dearborn. *Sci Am S* 81:410-11 Je 24 '16
See also Civil service—Examinations; Engineering—Examinations; Mining engineering—Examinations

Examinations, Physical. See Physical examinations**Excavating machinery**

- Albrecht excavator and loader. *il* *Concrete Cem* 7:125 S '15; *Ry Age* 60:119 Ja 21 '16
 American trenching machines in the European war. Eng N 76:791-2 O 26 '16
 Contractor's excavator attachment makes shallow street cuts. *il* *Eng Rec* 73:429 Mr 25 '16
 Ditching and grading machinery. *il* Eng N 75:79-80 Ja 13 '16
 Ditching with capstan plows. *il* Eng N 75:226-7 F 3 '16
 Drag line excavator trackway for levee construction. Baton Rouge, La. *il* Eng & Contr 46:157-8 Ag 16 '16
 Excavating machinery used in land drainage. D. L. Yarnell. *il* diags U S Agric Bul 300:1-37 '15; Excerpt (Straddle ditch excavators in drainage work). Eng & Contr 45:63-4 Ja 19 '16; Summary. Eng Rec 73:261 F 19 '16
 Excavating machines and overhaul. G. B. Massey. Eng Rec 74:148 Jl 29 '16
 Excavator for street grading. *il* Eng N 76:495 S 14 '16
 Excavator for wide cuts. *il* Eng N 75:899-900 My 11 '16
 Large wheel-type excavator. *il* Eng N 75:1178-9 Je 22 '16
 Lübecker excavator in the Klondike. C. A. Thomas. *il* Eng & Min J 101:1057-9 Je 17 '16; Same cond. Eng N 76:74-5 Jl 13 '16
 Machine that does the work of many laborers in grading and excavating work. *Sci Am* 115:86-7 Jl 22 '16
 Mammoth electric draglines dig diversion channels and construct levees. *il* diags Eng Rec 73:826-8 Je 24 '16

- New type of excavator. *il* Eng & Contr 46:436 N 15 '16
 Operation of electric dragline excavators. *il* Elec W 68:856 O 28 '16
 Plowing drainage ditches. F. C. Perkins. *il* *Sci Am S* 82:228 O 7 '16
 River diversion and flood control in Missouri. Eng N 76:344-5 Ag 24 '16
 Rock tunneling without the use of explosives. *il* *Sci Am* 114:657 Je 24 '16
 Self-propelling drag line excavator. *il* Eng & Contr 46:63 Jl 19 '16
 Stripping the overburden in openpit mining. L. O. Kellogg. *il* Eng M 50:896-909 Mr '16
 Timber trackway units for drag line excavators. *il* Eng & Contr 46:162 Ag 16 '16
 Tracks for heavy excavators on river diversion. *il* diags Eng N 76:76 Jl 13 '16
 Traveling drag-line excavator. *il* diags Eng N 75:754 Ap 20 '16
 Trench excavation and a clean street. *il* Eng & Contr 46:155 Ag 16 '16
 Trenching machinery used for the construction of trenches for tile drains. D. L. Yarnell. *il* *Farmers' Bul* 698:1-26 '15
 Walking dragline excavator. *il* *Ry Age* 60:116 Ja 21 '16

See also Dredges; Electric shovels; Rock drills; Shoveling machines; Steam shovels

Excavation

- Building the Chesapeake & Ohio Northern railway. *il* diags map Eng N 75:6-11 Ja 6 '16
 Construction plant controls minimum drainage ditch and levee sections. *il* plan Eng Rec 73:701-2 My 27 '16
 Daily report form for steam shovel and drag line excavation work. Eng & Contr 46:265 S 20 '16
 Ditching and digging pole holes with dynamite. T. M. Knight. diags Eng & Contr 46:66-8 Jl 19 '16
 Dumping table for loading wagons in excavating building foundations. diag Eng & Contr 46:71 Jl 19 '16
 Excavation of the Baldwin reservoir, Cleveland. *il* diag plan Eng N 75:838-9 My 4 '16
 Excavation methods on large sewer contracts. *il* *Munic Eng* 51:28-30 Jl '16
 Four street shaft plants to handle 300,000 yards of excavation in twelve months. *il* diags Eng Rec 73:152-3 Ja 29 '16
 Gasoline tractor developed in power ditching. F. C. Perkins. *il* Eng Rec 74:134 Jl 29 '16
 Method and general cost of rock excavation for the Inlet swamp drainage district, Illinois. Eng & Contr 46:429-30 N 15 '16
 Method of excavating deep cuts to neat lines. diag Eng & Contr 45:514 Je 7 '16
 Methods and costs of drag-line excavation. J. A. Barr. diag Ry R 59:74-5 Jl 15 '16
 Motor trucks descend into deep building excavation. *il* Eng Rec 74:267 Ag 26 '16
 New trench-excavation system. *il* diags Eng N 75:1086-8 Je 8 '16
 New York subway's largest elevator shaft sunk under Forty-second street. diag Eng Rec 74:285-6 S 2 '16
 Plant and method of dry excavation, Livingstone channel, Detroit river. C. Y. Dixon. map Eng & Contr 46:425-6 N 15 '16
 Railway ditching trains. *il* Eng N 75:498 Mr 16 '16
 Six-mile sewer extension has sinuous course. *il* Eng Rec 73:825 Je 24 '16
 Steam shovel excavation in shallow cuts. T. J. Ferrenz. *il* Eng & Contr 46:254 S 20 '16
 Use of cement grout under pressure as an aid to excavation. J. F. Springer. *il* diag *Concrete* 9:118-20 O '16
 Winter sewer work at St. Paul. G. H. Herrold. *il* Eng N 75:1090-1 Je 8 '16

See also Blasting; Dredging; Electric shovels; Excavating machinery; Hydraulic excavation; Shaft sinking; Shovels; Steam shovels; Street openings; Subways; Subways (streets); Trenches; Tunnels and tunneling

Cost

- Canal excavation with electric drag-line scrapers. *il* Elec W 67:255-6 Ja 29 '16
 Cost of earth work of the second unit of the Dodson North canal, Milk river project, Malta, Mont. A. E. Bechtel. *il* Eng & Contr 46:266-7 S 20 '16

Excavation—Cost—Continued

- Cost of excavating pavement, trenching and steam pipe laying. Eng & Contr 46:62 J1 19 '16
- Costs on excavation and concrete for Mayfair pumping station, Chicago, Ill. Eng & Contr 46:364 O 25 '16
- Dragline excavation costs. Eng & Min J 101: 340-1 Mv 27 '16
- Electrically driven dragline scrapers dig 45-mile irrigation canal at Sun river project. Il Eng Rec 73:148 Ja 29 '16
- Excavating machinery used in land drainage. D. L. Yarnell. il U S Agric Bul 300:1-37 '15; Excerpts. Eng & Contr 45:89-90, 116-17, 120-2, 128 Ja 26-F 9 '16
- Inexpensive excavation by Cleveland railway co. il Eng & Contr 46:56 J1 19 '16
- Shallow excavation by steam shovels. il Munic Eng 50:39-41 Ja '16
- Tile drainage by day labor and by the rod. il map Eng N 75:450-2 Mr 9 '16

Excavation, Subaqueous

- Difficult piece in subaqueous rock excavation; Coenties Reef and the Whitehall-Montague street tunnels. il Sci Am 115:235+ S 9 '16
- Drill barge on canal work in the Everglades. C. C. Phelps. il Eng N 76:704 O 12 '16
- Subaqueous excavation at the Halifax ocean terminals. il diag Eng N 75:228-9 F 3 '16
- Subaqueous rock excavated from platform. C. C. Phelps. diag Eng N 76:171-2 J1 27 '16
- See also Channels; Dredging; Tunnels and tunneling, Subaqueous

Executive ability

- Administration; its principles and their application. W. H. Bell. J Fr Inst 182:659-80 N '16

See also Leadership

Executives

- Executive and the modern organization. D. T. Farnham. Eng M 51:485-93 J1 '16

Exhaust gas. See Gas and oil engines—Exhaust**Exhaust steam**

- Application of high pressure exhaust steam to manufacturing purposes; abstract. J. M. Taggart. plan Am Soc M E J 38:189-90 F '16
- Central station steam heating by Miles City, Montana, municipal plant. G. C. Pruett. Munic Eng 51:2-4 J1 '16
- Engine condensation with particular reference to heating with the exhaust. P. West. diags Am Soc Heat & V E 21:70-83; Discussion. 91-108 '15; Discussion. Heat & Ven 12: 46-8 Mr '15
- Exhaust steam and miter coils. Metal Work 84:835 D 31 '15
- Exhaust steam in hot water storage systems. G. H. Perkins. diags Textile World 51: 353+ Ag 12 '16
- Exhaust steam turbine. J. Breslav. il diags Power 43:801-5 Je 6 '16
- Exhaust steam turbine. V. Bonn. Power 44: 176-7 Ag 1 '16
- Gasometer for exhaust steam. diag plan Power 43:658 My 9 '16
- Heating by exhaust steam. Power 42:821 D 14 '15
- Heating value of exhaust steam. D. M. Myers. Am Soc Heat & V E 21:84-91 '15; Same. Sch Mines Q 36:40-7 N '14; Discussion. Am Soc Heat & V E 21:91-108 '15
- Heating with exhaust steam from steam hammers. I. N. Evans. Heat & Ven 13:41-2 N '16
- Making the steam plant adequate for both power and heating. C. L. Hubbard. Eng M 51:716-23 Ag '16
- Superheating exhaust steam. H. O'Neill. Power 44:319-20 Ag 29 '16
- The use of exhaust steam in a shipyard. Int Marine Eng 21:252 My '16

Exhaust systems. See Dust removal**Exhibition buildings**

- Gas illumination of the Philadelphia civic exposition. C. S. Snyder and F. H. Gilpin. il plan Illum Eng Soc 11:846-50 no 8 '16; Same. Gas Age 38:382, 440 O 2-16 '16
- Panama-Pacific exposition buildings sold. Bldg Age 38:35-6 Ja '16

Exhibitions

See also Agricultural exhibitions; San Francisco—Panama-Pacific international exposition; also subdivision Exhibitions under names of subjects, e.g. Automobiles—Exhibitions, Gas industry—Exhibitions

Expansion (heat)

- Chart for determining the expansion of metals. W. F. Schaphorst. Ry Mech Eng 90:504 O '16; Same. Gas Age 38:81 J1 15 '16; Same. Eng & Min J 102:824 N 4 '16
- Densities and cubical coefficients of expansion of certain substances: As₂O₃, PbCl₂, PbBr₂, NaCl₃. G. P. Baxter and C. F. Hawkins. Am Chem Soc J 38:266-71 F '16
- Densities and cubical coefficients of expansion of the halogen salts of sodium, potassium, rubidium and cesium. G. P. Baxter and C. C. Wallace. Am Chem Soc J 38:259-66 F '16
- Density and thermal expansion of American petroleum oils. H. W. Bearce and E. L. Pfeffer. diags U S Bur Stand Tech Pa 77:1-26 '16
- Development of low expansion glasses. E. C. Sullivan. J Ind & Eng Chem 3:399-401 My '16; Abstract. Eng M 51:599 J1 '16
- Thermal reactions of cast iron. T. Turner. Iron Tr R 59:782-4 O 19 '16; Abstract. Am Soc M E J 38:1032-3 D '16

Expansion joints. See Concrete construction—Expansion joints; Pavements—Expansion joints; Pipe joints**Expense distribution.** See Cost accounting**Experimental pavements.** See Pavements, Experimental**Explosions**

- Decomposition of ammonia. R. Plank. Power 42:914-15 D 28 '15
- Explosion in an ash tank. Power 43:486, 627-8 Ap 4, My 2 '16
- Explosion of a poker. T. F. Connery. il Locomotive 31:51 Ap '16
- Failure of a copper steam pipe on the Clan Urquhart. S. A. Houghton and P. McNeil. diag Engineer 122:88-9 J1 28 '16
- Freeing manholes of gas. G. W. McKelway. il Elec Ry J 47:44-5 Ja 1 '16
- Gas explosion in Cleveland water intake tunnel. Eng N 76:187 J1 27 '16
- How the giant destroys. C. H. Claudy. Sci Am 115:389 O 28 '16
- Munitions explosion in New York harbor. il Sci Am 115:150 Ag 12 '16
- Unusual explosion in connection with potassium chlorate. F. E. Rowland. il J Ind & Eng Chem 8:517-18 Je '16
- See also Boiler explosions; Coal mines and mining—Accidents and explosions; Dust explosions; Explosives; Flywheel explosions; Mine accidents; Mine explosions; Sewer explosions; Steam turbines—Explosions

Explosions, Ammonia. See Ammonia explosions**Explosions, Mine.** See Mine explosions**Explosives**

- Canadian plant for making acids and explosives built at rate of \$300,000 a month. il Eng Rec 73:710-11 My 27 '16
- Cellulose for explosives. Engineer 120:275-6 S 17 '15; Same. Sci Am S 81:111 F 12 '16
- Chemistry in coal mining; with table showing analyses of various explosives. A. G. Blakeley. Coal Age 10:298-9 Ag 19 '16
- Consumption of explosives in mining. Eng & Min J 102:724-5 O 14 '16
- Cotton in explosives. Textile World 51:441+ O 14 '16
- Dangers other than accidents in the manufacture of explosives. A. Hamilton. J Ind & Eng Chem 81:1064-7 N '16
- Electricity in the manufacture of explosives. il Elec R & V Elec'n 69:65-6 J1 8 '16
- Explosives; their history and nature. F. Bailey. Sci Am S 81:133-9 F 26 '16
- Handling explosives in mines. Coal Age 8: 769-70; 9:90, 163-4, 345, 508, 607, 813-14 N 6 '15, Ja 8, 22, F 19, Mr 18, Ap 1, My 6 '16
- Importance of the chemical industry. Am Ind 17:20-3 S '16
- Liquid air as an explosive; abstracts. M. Przyborski. Am Soc M E J 37:341-2 Je '15; Coal Age 8:843 N 20 '15
- Nature of explosives. A. Marshall. Sci Am S 82:230-1 O 7 '16

Explosives—Continued

- New Du Pont nonfreezing explosive; Arctic. Eng & Min J 101:776 Ap 29 '16; Eng & Contr 45:387 Ap 26 '16
- New mining explosive. Eng & Min J 101:690 Ap 15 '16
- Nitration of toluene. E. J. Hoffman. Met & Chem Eng 14:467-8 My 1 '16
- Production of explosives; government census figures for 1914 and those for 1909. Iron Age 97:303-4 F 3 '16
- Production of explosives in the United States during the calendar year 1915. A. H. Fay. U S Bur Mines Tech Pa 159:1-22 '16
- Relationship of explosives to dyestuffs. W. Beckers. Textile World 51:5023 N 25 '16
- Selection of explosives for mines and quarries. Engineer 120:599-600 D 24 '15
- Storage and handling of explosives in mines. C. E. Munroe. Eng & Min J 101:349-52 F 19 '16
- Supply of explosives. Eng Rec 72:779 D 25 '15
- See also Blasting; Detonators; Dynamite; Guncotton; Torpedoes; Trinitrotoluene

Analysis

- Analysis of permissible explosives. C. G. Storm. il diags U S Bur Mines Bul 96:1-81 '16

Storage

- Heating of dynamite thaw houses. diags Metal Work 85:514-15 Ap 14 '16
- Underground magazines for the city tunnel Catskill aqueduct. diag Eng & Contr 44:452 D 8 '15

Transportation

- Convenient safety cap box. il Eng & Min J 102:792 O 28 '16; Same. Coal Age 10:743 N 4 '16
- Safe transportation of explosives and other dangerous articles. J. L. Taylor. Met & Chem Eng 14:46 Ja 1 '16

Explosives, Military

- Role of chemistry in the war. A. S. Cushman. J Fr Inst 181:163-90 F '16

Export duties. See Tariff**Export trade**

- American engineers enter the foreign field. Eng M 50:674-81 F '16
- American steel trade with Europe. A. Kapteyn. Jr. Iron Age 98:951 O 26 '16
- British India's railroad development. J. K. Goodrich. Iron Age 97:486-7 F 24 '16
- Building up our overseas trade. J. A. Farrell. Iron Tr R 58:291-3 F 3 '16
- Commercial preparedness for war aftermath. A. A. Gray and M. G. Lloyd. Elec R & W Elec'n 68:1112-14 Je 17 '16
- Consider the postage stamp. W. S. Hiatt. Ry Age 60:59-60 Ja 14 '16
- Co-operation and efficiency in developing our foreign trade; abstracts. E. N. Hurley. Iron Tr R 58:1226-7 Je 1 '16; Iron Age 97:1325-7 Je 1 '16
- Co-operation in foreign trade. J. E. Davies. Sci Am S 81:118-19 F 19 '16
- European and American competition in export trade. H. S. Foley. Elec W 67:1440-1 Je 17 '16
- Export opportunities in a European city. H. S. Foley. il Elec W 68:1047-8 N 25 '16
- Export trade suggestions. U S Bur For & Dom Com misc ser 35:1-140 '16
- Exportation of American machine tools. G. R. Woods. Mach 22:469 F '16
- Exporting to Australia. P. B. Kennedy. U S Bur For & Dom Com misc ser 45:1-29 '16
- For co-operation by American exporters. Iron Age 97:1148-9 My 11 '16
- Foreign credit conference. Am Ind 16:27-8 Je '16
- Foreign investment of American capital. J. A. Farrell. Iron Age 97:316-17 F 3 '16
- Foreign markets for electrical goods. R. A. Lundquist. Elec W 68:898-9 N 4 '16
- Foreign trade building. D. Frothingham. Textile World 51:1763+ Ap 8 '16
- French and Belgian markets. A. P. Dautun. Mach 22:412 Ja '16
- Handling an export business in the Far East. G. J. Seiler. Am Ind 16:29-32 Ap '16
- Handling iron and steel export shipments. F. A. Kelly. Iron Age 98:1112-13 N 16 '16

How export business should be conducted. W:

Tonk. Am Ind 16:20-1+ J1 '16

How to go after South American trade. R. W. Gifford. Mach 22:497-8 F '16

Increase in exports for past two years. Iron Tr R 59:238 Ag 3 '16

Industrial preparedness for peace; the human side of salesmanship. M. Chipman. Sci Am 114:300+ Mr 18 '16

Iron, steel and machinery exports in 1915. Iron Age 97:428-9 F 17 '16

More business for the electrical exporter. W. S. Kies. il Elec W 68:64-5 J1 8 '16

National foreign trade council's third convention, New Orleans, Jan. 27-29, 1916. Iron Age 97:318-24 F 3 '16

New export regulations. F. R. Rutter. Am Ind 16:26-7 My '16

Our vanishing export trade in the products of American forests. il Sci Am 114:319+ Mr 25 '16

Post-bellum foreign trade. J. K. Goodrich. Am Ind 17:19-20 O '16

Preparation for export trade with Russia. S. H. Bunnell. Iron Age 98:1184-5 N 23 '16

Promoting the electrical export business. Elec W 68:613-14 S 23 '16

Representation in foreign electrical markets. il Elec W 68:854-5 O 28 '16

Selling machinery and steel in Russia. A. J. Wolfe. Iron Age 97:1548-51 Je 29 '16

Specifications for the export trade. Iron Age 97:1554-5 Je 29 '16

Trade opportunities in Australia. N. Nielsen. Am Ind 17:34 N '16

U. S. export record again broken. Dom Eng 77:189 N 11 '16

United States united for trade in foreign lands. W. S. Hiatt. Ry Age 60:21-4 Ja 7 '16

Wanted, \$100,000,000 worth. A. L. Clayden. Automobile 34:441-3 Mr 9 '16

What the development of foreign trade means to the engineer. F. Lavis. Eng Rec 74:659-60 N 25 '16

World trade readjustments after the war. S. H. Bunnell. Iron Age 98:1101-2 N 16 '16

See also South America—Commerce; United States—Commerce

Exposition buildings. See Exhibition buildings**Extensometers**

- Riveted joints being tested by series of simple and accurate mirror extensometers. il diag Eng Rec 73:638 My 13 '16

Extraction, Chemical. See Chemical extraction**Extractors. See Chemical extraction****Extracts. See Meat extracts****Extracts, Flavoring. See Flavoring extracts****Extrusion process**

- Southwalk foundry & machine co. develops 2,000-ton extrusion press. il Iron Tr R 58:992 My 4 '16
- Watson-Stillman extruding machines. il Metal Ind n s 14:33 Ja '16

Eye

- Average eye for heterochromatic photometry, and a comparison of a flicker and an equality-of-brightness photometer. E. C. Crittenden and F. K. Richtmyer. diags Illum Eng Soc 11:331-56; Discussion. 356-66 no 3 '16
- Blind spot; a peculiarity of the eye that is a source of danger. E. B. Dayton. diags Sci Am S 81:286-7 Ap 29 '16
- Effects of brightness on vision; abstract. P. G. Nutting. J Fr Inst 182:531-2 O '16
- Experiments on the eye with inverted reflectors of different densities. C. E. Ferree and G. Rand. il plan Illum Eng Soc 10:pt 1a :1097-1130; Discussion. 1130-70 no 9 '15
- Factors in illuminating engineering. F. K. Richtmyer. diags Sibley J 30:95-9 D '15
- Fundamental principles of good lighting. P. G. Nutting. Am Gas Light J 103:403-6 D 27 '15; Same abr. Sci Am S 82:254-6 O 14 '16
- Histologic effects of heat on the eye. W. E. Shahan and H. D. Lamb. Sci Am S 82:298 N 4 '16
- Industrial lighting from the new aspect. C. E. Clewell. Elec R & W Elec'n 69:463 S 9 '16
- Method of studying the behavior of the eye under different conditions of illumination. F. K. Richtmyer and H. L. Howes. Illum Eng Soc 11:100-5; Discussion. 106-13 no 1 '16

Eye—Continued

- Report of the committee on progress; physiology. *Illum Eng Soc* 11:756-8 no 8 '16
 Retinal sensibilities related to illuminating engineering. P. G. Nutting. *Illum Eng Soc* 11:1-16; Discussion. 17-21, 131-6 no 1 '16
 Ultra-violet radiation and the eye. W. E. Burge. *il Illum Eng Soc* 10:932-9; Discussion. 939-46 no 9 '15
 Vision and the brightness of surroundings. P. W. Cobb. *diags Illum Eng Soc* 11:372-88; Discussion. 198-98 no 3 '16
 Visual diffusivity. H. E. Ives. *J Fr Inst* 182: 540-1 O '16
 Yellow spot and the blind spot as causes of visual error. H. Fischer. *Sci Am S* 82:201 S 23 '16
See also Light; Nightblindness; Sight

Diseases

- Study of hereditary eye defects. C. H. Danforth. *Sci Am S* 82:168-9 S 9 '13

See also Miners' nystagmus

Protection

See Goggles

Eye (animals)

- Animals with many eyes. S. C. Bailey. *il Sci Am S* 81:244-6 Ap 15 '16
 Studying the eyes of wild animals. *il Sci Am* 114:666 Je 24 '16

F

Fabrics, Waterproofing of. *See* Waterproofing of textiles

Fabrikoid

- Solving the upholstery problem. *il Automobile* 34:270-1 F 10 '16

Factories

- Building a stuccoed factory. *Factory* 17:82+ J1 '16
 Building the factory. J: J. Klaber. *il Eng M* 51:355-67 Je '16
 Changes in Graton & Knight plant sky line. *il Textile World* 51:355+ Ag 12 '16
 Cutting die plant; Webster & Perks factory, Springfield, O. plan *Iron Age* 97:1491 Je 22 '16
 Does it pay to improve manufacturing and industrial buildings architecturally? G: C. Nimmons. *il plans Brickb* 25:217-30, pl 137-52 S '16
 Economizing footsteps. C. B. Thompson. *diags Factory* 17:528-30 N '16
 Effect of vibration in factory buildings. *Eng Rec* 74:355-6 S 16 '16
 How enameled kitchen ware is made. *il plan Iron Tr R* 59:1091-7 N 30 '16
 Hydraulic system in modern shell plant. F. L. Prentiss. *il plan Iron Age* 98:231-3+ Ag 3 '16
 Large frog and switch plant at Easton, Pa. built in practically one year. *il plan Eng Rec* 72:698-700 D 4 '15
 Mill construction; abstract. C. E. Paul. *J Fr Inst* 182:549 O '16
 Modern manufacturing building; its development as represented in recent structures in the eastern states. J: J. Klaber. *il plans Brickb* 25:231-8 S '16
 Modern methods of car building. R. V. Sawhill. *il plan Iron Tr R* 58:281-6 F 3 '16
 New home of the Buffalo meter company. G: W. Grupp. *il Metal Ind n s* 14:336 Ag '16
 New home of the Jacobs chuck. W. E. Free-land. *il Iron Age* 98:227-30 Ag 3 '16
 Remington arms plant, Bridgeport, Conn. *il Iron Age* 97:296-303 F 3 '16; Abstract. *Eng & Contr* 45:278 Mr 22 '16
 Remington arms plant, Building of. T. Starrett and others. *il Arch & Bldg* 48:37-48, pls 15-17 Mr '16
 Remington small arms factory represents effective preparedness. *il Iron Tr R* 58:246-9 Ja 27 '16
 Standardization of buildings to insure economy and quick delivery. H. S. Jacoby. *il Eng Rec* 73:358-9 Mr 11 '16

Standardization of safety principles. C. M. Hansen. *diags plan Am Soc M E J* 38:277-81 Ap '16; Excerpts. *Am Ind* 17:sup1-4 S '16; Discussion. *Am Soc M E J* 38:281-4 Ap '16
 With the works engineer. *See* monthly numbers of *Factory*
 World's reinforced-concrete construction record claimed for frame of Philadelphia factory. *il plan Eng Rec* 74:160-1 Ag 5 '16

See also Automobile factories; Automobiles—Manufacture; Chair factories; Clothing factories; Cotton mills; Dye factories; Electric driving; Factory management; Factory sanitation; Iron works; Lunch rooms; Machine shops; Munition factories; Rolling mills; Steel works; Textile mills

Accounting

- Industrial accounting. F. J. Knoepfel. *J Account* 21:431-40; 22:16-27, 90-100, 177-86, 245-52, 353-60, 417-32 Je-D '16

Electric equipment

- Electric heating in the industries. *il Sci Am* 115:494+ D 2 '16
 Electricity increases doll factory output. *il Elec W* 68:1107-8 D 2 '16
 Electrification of isolated factories. *diags Engineer* 121:57-8, 80-2, 104-5, 128-9, 150-2, 172-4, 191-2, 231-2, 274-5, 310-11, 382-3, 412-14, 476-7, 519-21; 122:3-4, 52-3, 94-5 Ja 21-Mr 3, 17, 31, Ap 14, My 5, 19, Je 9, 23, J1 7, 21, Ag 4 '16
 How to do factory jobs electrically; photographs. *Factory* 17:660-1 D '16
 Rack to support control equipment for factory induction motors. H. Mathews. *il Elec W* 66:1433 D 25 '15
See also Electric driving; Electric heating, Industrial; Factories—Lighting

Heating and ventilation

- Fan-furnace system in manufacturing plant. *il diag plan Metal Work* 85:505-7 Ap 14 '16
 Gas would supply temperature necessary to keep air, in factories ventilated by the natural system, within the permissible limits. *Am Gas Light J* 105:37-8 J1 17 '16
 Heating a factory by steam pipe coils, suspended from the ceiling. *diags Dom Eng* 77: 79-80 O 21 '16
 Heating by forced circulation of hot water in textile mills. A. G. Duncan. *Am Soc M E J* 38:197-201 Mr '16; Same. *Power* 43:128-31 Ja 25 '16; Same. *Textile World* 51:699, 701, 703, 777 Ja 15 '16; Same cond. *Metal Work* 84: 770-3 D 17 '15; Discussion. *Am Soc M E J* 38:201-2 Mr '16
 Hollow reinforced-concrete columns for Ford plant. *diags Eng Rec* 74:620-1 N 13 '16
 Hot-water heating at plant of the Crane co., Chicago. T: Wilson. *il diags Power* 44:370-5, 411-13 S 12-19 '16
 How to increase factory efficiency. O. M. Becker. *il diags Eng M* 51:333-43, 501-20 Je-J1 '16
 Use of heating coils. T. W. Reynolds. *plans Heat & Ven* 12:17-22 D '15
 Ventilating Toledo factories' co., Toledo, Ohio building. *il diags plans Metal Work* 85:214-17 F 11 '16
 Ventilation of industrial plants. C. T. Graham-Rogers and W: T. Doyle. *Am Soc Heat & V E* 21:301-4 '15; Same. *Metal Work* 83: 283+ F 19 '15; Same. *Dom Eng* 71:4-5 Ap 3 '15; Discussion. *Am Soc Heat & V E* 21: 304-6 '15
 What to attain in ventilation; rules recommended by the American society of heating and ventilating engineers. *Factory* 17:482+ O '16

Lighting

- Artificial lighting and shop production. D. R. Shearer. *Elec R & W Elec'n* 69:19-20 J1 1 '16
 Better ways to light the work. *Factory* 16: 184+, 238+; 17:168+, 330+, 432+, 676+ F-Mr, Ag-O, D '16
 Code of lighting; factories, mills and other work places. *il plans Illum Eng Soc* 10:605-41 no 8 '15; Excerpt. *Am Gas Light J* 104: 187-8 Mr 20 '16; Excerpt. *Iron Tr R* 59:132 J1 20 '16
 Data on industrial lighting. *Illum Engr* 9:37-9 F '16

Factories—Lighting—Continued

- Economy of a separate night lighting system in a factory. W: T. Estlick. Elec R & W Elec'n 68:34 Ja 1 '16
- Efficient lighting in textile mills. A. Walton. il Textile World 51:3195+ J1 15 '16
- Establishing a basis for laws on lighting. C. E. Clewell. Elec W 66:1417-18 D 25 '15
- Factory lighting. Gas Age 38:298-9 S 15 '16
- Factory lighting. F. Schwarze. Elec R & W Elec'n 68:362 F 26 '16
- Gas lighting in industrial plants. T. Scofield. il Eng M 52:67-82 O '16
- How to increase factory efficiency; artificial lighting. O. M. Becker. il Eng M 51:25-39, 177-93 Ap-May '16
- How to increase factory efficiency; natural lighting. O. M. Becker. il Eng M 50:835-52 Mr '16
- Illumination and one year's accidents; with discussion. R. E. Simpson. Illum Eng Soc 10: 868-82 no 9 '15
- Industrial lighting from the new aspect. C. E. Clewell. il Elec R & W Elec'n 69:407-10, 463-6 S 2-9 '16
- Industrial lighting with mercury-vapor lamps. W: A. D. Evans. bibliog il Illum Eng Soc 10: 883-903 no 9 '15
- Lighting legislation. L. B. Marks. Illum Eng Soc 11:47-53 no 1 '16
- Lighting of factories and workshops. Engineer 120:534-5 D 3 '15
- Lighting of factories, mills and workshops; abstract. C. E. Clewell. Elec R & W Elec'n 69:676 O 14 '16
- Lighting of steel mills with quartz lamps. G: C. Keech. il plan Elec R & W Elec'n 69: 508-10 S 16 '16
- Modern aspects of factory lighting and the new code. C. E. Clewell. il Illum Eng Soc 11:436-47 no 3 '16; Same. Am Gas Light J 104:186-7 Mr 20 '16; Discussion. Illum Eng Soc 11:448-52 no 3 '16
- Modern aspects of mill lighting. il Textile World 51:1379, 1833 Ap 15 '16
- Natural lighting of manufacturing buildings. O. M. Becker. il Brickb 25:239-42 S '16
- Notes on the first report of the departmental home office committee on lighting in factories and workshops. L. Gaster. Illum Engr 8:485-96; Discussion. 497-506 D '15
- Overhead shop lighting. il Illum Engr 9:26 Ja '16
- Principles in industrial lighting; with special reference to the first report of the departmental [home office] committee on lighting in factories and workshops. J. S. Dow. il diags Illum Engr 9:42-58 F '16; Abstract. Engineer 121:108 F 4 '16; Discussion. Illum Engr 9:58-68 F '16
- Securing industrial lighting business. O. R. Hogue. il Elec R & W Elec'n 68:924-30 My 20 '16
- Suggested code of lighting for factories, mills and other work places in the United States. Illum Engr 8:414-19, 451-5; 9:136-4p O-N '15, Ap '16
- Surface-plant illumination. Eng & Min J 102: 711-12 O 14 '16

Lunch rooms

See Lunch rooms

Signals

- New factory signal system. il Iron Age 97:830-1 Ap 6 '16

Yards

- Economy in scrap yard arrangement. il plan Iron Age 96:1403-5 D 16 '15

Factory clubs

- Industrial clubs. W. W. Davidson. il Eng M 51:586-8 J1 '16
- Westinghouse club; technical education of employees. il Automobile 35:942-3 N 30 '16

Factory costs.

See Cost accounting; Manufactures—Costs

Factory grounds

- What to plant on factory grounds. E. S. Park. il Factory 16:461-3 My '16

Factory laws. See Child labor; Foundry laws; Workmen's compensation**Factory lunch rooms.** See Lunch rooms**Factory management**

- Advertising a factory to the employee. F. L. Prentiss. Iron Age 98:925-6 O 26 '16
- Bringing a jewelry factory up to date. C. M. Hoke. Metal Ind n s 14:18-19 Ja '16
- Budget system for manufacturers. C. S. Loder. Am Ind 16:18-19 D '15
- Committees manage Perfection spring co. Automobile 35:819-20 N 9 '16
- Common sense as a basis for efficiency. G: H. Shepard. Ind Management 52:381-91 D '16
- Detail engineer; simplified design and a shop system which resulted in increased profits. G: P. Pearce. diags Mach 22:1039-42 Ag '16
- Detroit executives' club. B. Fisher. Eng M 51:381-6 Je '16
- Dispatch system of Norton grinding company. il Iron Age 98:1-5 J1 6 '16
- Exact control of manufacture in practice. G: D. Babcock. Iron Age 96:1410-13 D 16 '15
- Fitting today's plant to to-morrow's needs. F. H. LeMont. Factory 16:139-40, 234-7 F-Mr '16
- Handling your own repairs; based on a questionnaire. Factory 17:265-7 S '16
- High cost of labor that comes and goes. Factory 17:653-6 D '16
- How to control production activities. C. F. Scribner. Factory 16:466-7 My '16
- How to increase factory efficiency. O. M. Becker. il Eng M 50:835-52; 51:25-39, 333-43, 501-20, 657-72, 813-26 Mr-Apr, Je-S '16
- How to increase the output with the present force. R. W. Higgins. Eng M 51:562-6 J1 '16
- How to study factory efficiency. J. K. Mason. Eng M 51:394-400, 542-7 Je-J1 '16
- How we have answered some factory management problems. H. F. Albright. il Factory 17:133-7 Ag '16
- How we keep costs in our 75-man plant. E. A. Clark. Factory 17:405-8 O '16
- How we lifted hiring out of the rut. A. K. Baer. il Factory 16:445-6 My '16
- Industrial management in textile plants. W. C. Taylor. Textile World 51:2336-7 Je 24 '16
- Industrial preparedness for peace; planning and dispatching. M. Chipman. Sci Am 114: 400+ Ap 15 '16
- Keeping control of factory clerical methods. K. E. Clarke. Factory 17:140-3 Ag '16
- Keeping machines on the job. C. F. Scribner. Factory 16:372 Je '16
- Keeping records of finished products. H. A. Russell. Iron Age 98:70-3 J1 13 '16
- Keeping track of work in process. H. A. Russell. Iron Age 98:6-9 J1 6 '16
- Lessons from war business; filling the valleys in your production curve. il Factory 16:329-32 Ap '16
- Leaving board for plant officials. il Mach 23: 153-4 O '16
- Making motor trucks in the White plant. Cleveland. F. L. Prentiss. il Iron Age 98: 341-9 Ag 17 '16
- One good way to number parts. Factory 17: 667-8 D '16
- Paying bonuses to indirect labor. Iron Age 97:366-70 F 10 '16
- Practical ways to cut costs. il Factory 16:131-3, 231-3, 459-60, 569-71; 17:146-7, 263-71, 408-9 F-Mr, My-Je, Ag-O '16
- Preparedness in manufacture; results of lack of preliminary planning in a munitions plant. Mach 22:899-900 Je '16
- Pushing up production and lowering cost. C. U. Carpenter. Eng M 51:641-50 Ag '16
- Regulating and balancing production. H. A. Russell. Iron Age 97:1556-8 Je 29 '16
- Relation of the inspection department to the management. F. B. Corey. Ind Eng 15:17-18 Ja '15; Same. Iron Age 95:566-7 Mr 11 '15; Same. Mach 22:863-4 Je '16
- Sales versus operating department. D. T. Farnham. Eng M 50:921-5 Mr '16
- Set of error-saving production forms. H. S. Mitchell. Iron Age 98:446-7 Ag 31 '16
- Step-by-step inspection. W. F. Rockwell. Factory 17:25-6 J1 '16
- Stock keeping in adding machine factory; Burroughs adding machine co. Detroit. F. L. Prentiss. il Iron Age 96:1347-51 D 9 '15
- Taking one's own medicine; using the factory's products. Mach 22:559 Mr '16

Factory management—Continued

Twenty-four hour day. C. J. Morrison. Eng M 50:910-13 Mr '16

What did it cost?; how the question is answered in one jewelry factory. W. A. Cunningham. Factory 17:148-51 Ag '16

Whether to make or buy; does it pay to do your own printing? E. S. Hanson. Factory 17:256-7 S '16

See also Assembling methods; Bonus system; Conveying machinery; Cost accounting; Employees; Employment systems; Foremen's meetings; Industrial betterment; Machine shop management; Mechanical handling; Noise; Organization in industry; Payrolls; Purchasing; Records; Routing systems; Scientific management; Stores systems; Time study; Welfare work in industry

Bibliography

Management. Factory 16:146+ F '16

Lunch rooms

See Lunch rooms

Schedules

Rush orders. B. J. W. Sayles. Factory 16:586-7 Je '16

Factory mutual companies

Engineer and the business of fire insurance. J. P. Gray. Am Soc M E J 38:209-10 Mr '16

Factory records. See Records**Factory sanitation**

How to dispose of sewage. T. Darlington. Factory 17:356+ S '16

How to increase factory efficiency; cleanliness and comfort. O. M. Becker. il Eng M 51:657-72 Ag '16

Improved sanitary lavatory installation. T. J. Claffy. il Dom Eng 73:432-3 D 25 '15

Sanitary equipment of industrial buildings. H. L. Alt. diags Brickb 25:243-6 S '16

Sanitary plumbing equipment in factory. il Metal Work 85:68-70 Ja 7 '16

Standards based on experience. Factory 17:134+ Ag '16

Various types of wash sinks installed in factories and industrial establishments. J. Graham. il diags Dom Eng 74:324-5 Mr 11 '16

See also Dust removal; Factories—Heating and ventilation; Hygiene, Industrial; Sweeping compounds; Toilet rooms

Factory transportation. See Mechanical handling**Factory waste.** See Trade waste; Waste products**Fairs.** See Agricultural exhibitions**Fall River, Massachusetts****Sanitary affairs**

Design and construction of an intercepting drain to protect the surface water supply of Fall River. H. K. Barrows. il diags Eng & Contr 45:60-3 Ja 19 '16

Fall River concrete conduits—special reference to a three-level conduit of unique design. F. H. Pay. diags Eng & Contr 45:238-41 Mr 8 '16

Improvement of Quequechan river in Fall River, Mass. plan Munic Eng 49:218-19 D '15

False flax. See Flax**Fans**

Use of fans in India. Bldg Age 38:62-3 My '16

Fans, Electric

Electric ceiling fan for passenger cars. il Ry Mech Eng 90:428-9 Ag '16

Electrical manufacturing operations. C. L. Lucas. il Mach 22:741-3 My '16

New and improved electric fans for 1916. il Elec R & W Elec'n 68:258-63 F 5 '16

Racine electric fans. il Elec R & W Elec'n 68:347 F 19 '16

Refinements in design of electrically operated fans for 1916. il Elec W 67:222-4 Ja 22 '16

Uses for the electric fan in winter. G. A. Roush. Elec W 67:270-1 Ja 29 '16

See also Fans, Mechanical

Fans, Mechanical

Adjustable-speed motor-driven ventilating fans. il Elec W 67:784 Ap 1 '16

Breakage of fan blades. F. Sanford. diags Power 43:159-60 F 1 '16

Centrifugal fan. F. L. Busey. il diags Am Soc Heat & V E 21:43-69 '15; Same cond. Heat & Ven 12:31-7 Ap; 32-5 My '15

Centrifugal fans for air transmission. C. L. Hubbard. il Metal Work 84:827-9 D 31 '15

Directly connected electric ventilators. il Elec W 67:337 F 5 '16

Fan motor installations that minimize vibration. T. W. Reynolds. diags Elec W 67:880 Ap 15 '16

Important features in mine-ventilating fans. H. H. Valiquet. Coal Age 9:123-4 Ja 15 '16

Industrial control; accelerating characteristics of centrifugal pumps and fans. B. W. Jones. diags Gen Elec R 19:703-5 Ag '16

Installation of driving equipment for fans. H. Bard. diags Metal Work 86:3-4 J1 7 '16

Lecture course on elements of heating; use of electric power for fan drives. C. A. Fuller. Metal Work 86:1-3 J1 7 '16

Open-running fans. E. B. Wilson. il Coal Age 9:842 My 13 '16

Power drives for ventilating fan operation. H. Bard. il Metal Work 86:110-12 J1 28 '16

Selection of fan and motor speeds and method of connecting apparatus mechanically. T. W. Reynolds. Elec W 68:427-8 Ag 26 '16

Spiral casing of a fan. Coal Age 10:689 O 21 '16

Ventilation as a factor in the economical design of electrical machinery. E. Knowlton. diags Gen Elec R 19:597-602 J1 '16

See also Automobiles—Fans; Fans, Electric

Far East**Commerce**

Handling an export business in the Far East. G. J. Seiler. Am Ind 16:29-32 Ap '16

Faraday, Michael, 1791-1867

Addresses at presentation by D. J. Blaikley of Faraday books and papers. Inst E E J 54:114-18 D 15 '15

Relics of Michael Faraday; gift to Institution of electrical engineers. Engineer 120:498-9 N 26 '15

Faraday society

Annual general meeting, Oct. 19. Met & Chem Eng 13:962-4 D 15 '15

78th ordinary meeting, March 15. Met & Chem Eng 14:465-7 My 1 '16

79th meeting, London, May 9. Met & Chem Eng 14:679-80 Je 15 '16

Fare collecting. See Railroads—Fare collection; Street railroads—Fare collection**Fare registers.** See Street railroads—Fare registers**Fares.** See Electric railroads—Fares; Railroads—Fares; Street railroads—Fares**Farm accounting**

Farm cost accounting. E. H. Thomson. J Account 20:401-20 D '15

Farm buildings

Farm buildings on the estate of C. K. G. Billings, esq., at Locust Valley, Long Island. il plans Brickb 25:146-8, 159, pl 81-4 Je '16

Fruit storage house for the farm. J. L. Shawver. plans Bldg Age 38:45-6 My '16

Group of modern farm buildings; architecture, convenience, lighting and sanitation. il diags plans Bldg Age 38:19-28 N '16

Modern farm buildings under one roof. il diags plans Bldg Age 38:50-3 N '16

Use of sheet metal on farm buildings. il Bldg Age 38:67-9 N '16

Well-arranged farm buildings. il plans Bldg Age 38:45-8 D '16

See also Barns and stables; Corncribs; Farmhouses; Silos

Farm engines

Tractor for the walking job. il Sci Am 115:330+ O 7 '16

Why small farm engines are failures. F. R. Parsons. Sci Am S 82:174 S 9 '16

See also Agricultural machinery; Tractors

Farm houses. See Farmhouses**Farm loan act.** See Agricultural credit—United States**Farm machinery.** See Agricultural machinery**Farm motors.** See Electricity on the farm; Motor plows; Tractors

- Farm produce, Drying of**
Drying methods. Sci Am S 81:403 Je 24 '16
- Farm produce, Marketing of**
Agricultural preparedness; what the government is doing toward better production and better distribution. C: J. Brand. il Sci Am 115:154-5 Ag 12 '16
- Farm tractors.** See Tractors
- Farmhouses**
Farm house for a small family. diags plan Bldg Age 38:29-33 Jl '16
Farm house of the cottage type. il plans Bldg Age 38:34-7 N '16
- Farming.** See Agriculture
- Farms**
How Wall Street tills the soil. J: R. Colter. il Sci Am S 82:120-1 Ag 19 '16
- Fat extraction apparatus**
Large fat extractor. C. L. A. Schmidt. diag J Ind & Eng Chem 8:165 F '16
- Fatigue**
Conserving the worker's health and energy. F. B. Gilbreth and L. M. Gilbreth. Iron Age 97:326-8 Ap 6 '16
Fatigue in relation to illumination. Illum Engr 8:481 D '15
Health of munition workers and industrial fatigue. Illum Engr 8:479-80 D '15
Industrial fatigue; second report to the British association. Engineer 122:296-7 S 29 '16
Museum fatigue. B. I. Gilman. J Fr Inst 181: 302 F '16
- Fats.** See Oils and fats
- Faults (geology)**
Relation of ore-deposition to faulting. J. E. Spurr. Econ Geol 11:601-22 O '16
- Feathers**
Use of feathers in novelty yarns. il Textile World 51:1383+ Mr 11 '16
Use of feathers in yarns and cloths. il Textile World 51:2763 Je 10 '16
- Federal commissions.** See Commissions, Federal
- Federal farm loan act.** See Agricultural credit—United States
- Federal regulation of industry.** See Government regulation of industry
- Federal reserve act**
Federal reserve act. C: S. Hamlin. J Account 22:329-37 N '16
What the banks think of the reserve act. Am Ind 17:19-20 Ag '16
- Federal reserve banks**
Statements of borrowers from the viewpoint of the federal reserve bank. C: A. Peple. J Account 21:410-23 Je '16
- Federal trade commission**
Activities of the Federal trade commission. J. E. Davies. Ry R 58:29-30 Ja 1 '16
Cost keeping the basis of prosperity. H. F. Porter. Eng M 51:325-32 Je '16
Federal trade commission and the mining industry. E: N. Hurley. Coal Age 10:887-9 N 25 '16
Federal trade commission; editorial comment. Ry R 58:208 F 5 '16
Federal trade commission investigates the trade in printers' supplies. W. Fawcett. Inland Ptr 56:811-13 Mr '16
Standardization and better cost accounting. W. Wilson. Elec W 67:1199 My 20 '16
Trade associations and better business methods. E: N. Hurley. Engineer 121:473-4 Je 9 '16; Same cond. Metal Work 85:478-80 Ap 7 '16
Work of the Federal trade commission. E: N. Hurley. Ry R 57:736-8 D 4 '15
Work of the Federal trade commission. W: J. Harris. Textile World 51:1759+ Ap 8 '16
- Federation of British industries**
List of the members of the executive council. Engineer 122:280 S 29 '16
- Feed water**
Automatic feed-water weigher. C: W. Smith. diags Power 43:806 Je 6 '16
Banks boiler-feed trap. il diag Power 43:322 Mr 7 '16
Clean boiler water secured from muddy streams with well-points. Eng Rec 72:735 D 11 '15
Effects of dissolved salts in feed water. J: B. C. Kershaw. Power 43:914-16 Je 27 '16
Feeding boilers cold water. J. Lewis. Power 44:323-4 Ag 29 '16
How feed water should be discharged into a Scotch boiler. R. R. Roane. Int Marine Eng 21:209 Ap '16
Jacket water for boiler feed. diag Power 43: 216 F 15 '16
Testing feed water for salt. H: Wygod. il Power 44:602 O 24 '16
Water of condensation from steam turbines for boiler feeding; abstract. M. R. Schulz. Am Soc M E J 38:271 Mr '16
See also Boiler scale; Boilers; Feed water heaters; Feed water purification; Injectors; Pumps, Feed water
- Feed water heaters**
Feed heaters for small boats. diags Int Marine Eng 21:297 Je '16
Feed-water heater control. C: L. Ware. il Power 44:137-8 Jl 25 '16
Feed-water heaters. Power 44:155-6 Ag 1 '16
Leak in heater repaired. A. H. Yoch. diags Power 44:496 O 3 '16
Locating the feed-water heater. il Power 42: 830 D 14 '15
Piping separator and heater. C. P. Mann. diag Power 44:764 N 28 '16
Wooden feed-water heater. H. R. Rockwell. il Power 43:230 F 15 '16
Wooden feed-water heater. L: Vozza; W. B. Shipperson. il Power 43:665 My 9 '16
- Feed water heating**
Economic limit of feed-water heating surface. F. H. Rosencrans. Power 43:113-15 Ja 25 '16
Methods of feed water heating. T: J. Rogers. Int Marine Eng 21:507-8 N '16
Tom Hunter, hoisting engineer. W. O. Rogers. il diags Power 43:326-8 Mr 7 '16
See also Feed water heaters
- Feed water pumps.** See Pumps, Feed water
- Feed water purification**
Boiler-compound feeder. diag Elec W 68:434 Ag 26 '16
Boiler feed water treatment. il Ind Management 52:supl-2 N '16
Distilled feed water. C. F. Hirshfeld. Eng M 49:724-30 Ag '15; Same. Am Gas Light J 103: 375+ D 13 '15
Economizer feed-water purifier. diags plan Power 44:658 N 7 '16
F F F boiler-water treatment. il Power 44: 552-3 O 17 '16
Filtration of softened water. F. F. Vater. Power 43:651-2 My 9 '16
Filtration of softened water. W. A. Cronkite. Power 44:249 Ag 15 '16
Grease removal from boiler feed water. W. F. Schaphorst; W: Kent. Power 43:669 My 9 '16
Handling boilers to prevent corrosion and scale. A. H. Babcock. Am Soc M E J 38: 529-34 Jl '16; Same cond. with supplement by E. E. Geibel. Power 42:910-13 D 28 '15; Same cond. Metal Work 84:798-800 D 24 '15; Abstract. Eng M 50:772 F '16; Excerpts. Ry R 59:126-8 Jl 22 '16; Discussion. Am Soc M E J 38:534-8 Jl '16
Impure boiler waters. W: N. Berkeley. Power 43:795-6 Je 6 '16
Internal treatment of boilers. G: Anderson. Power 42:890-2 D 28 '15
Multiple filter and grease extractor. il Iron Age 97:425 F 17 '16; Elec W 67:670-1 Mr 18 '16; Met & Chem Eng 14:400 Ap 1 '16
Navy boiler compound used at Fruitvale. F. E. Geibel. Power 44:212 Ag 8 '16
Report of station operating committee of N. E. L. A. on water treatment. Power 43:894-5 Je 20 '16
Results from better feed water in Mineral Point, Wisconsin station. H. G. D. Nutting. diags Elec W 66:1256-8 D 4 '15
Screening water for power plant service. W. F. Schaphorst. il Sci Am 115:306 S 30 '16
Taking oil from feed water. R. A. Langworthy. plan Power 43:154-5 F 1 '16
Treatment of feed water for locomotive boilers. L. F. Wilson. Ry R 58:794-6 Je 3 '16
Water for steam boilers—its significance and treatment. A. C. Scott and J. R. Bailey. Am Soc M E J 38:867-9 N '16
Water treatment on the Missouri Pacific. il Ry Mech Eng 90:393-4 Ag '16
- Feeders.** See Electric distribution

Feeding and feeding stuffs

- Apparatus for digesting crude fiber. J. M. Pickel. *il diag J Ind & Eng Chem* 8:366-7 Ap '16
- Manufactured feeds for live stock. C. S. Miner. *J Ind & Eng Chem* 8:940-1 O '16
- Nonprotein nitrogenous constituents of feedingstuffs. H. S. Grindley and H. C. Eckstein. *Am Chem Soc J* 38:1425-31 J1 '16
- Quantitative determination of the amino acids of feedingstuffs by the Van Slyke method. H. S. Grindley and M. E. Slater. *Am Chem Soc J* 37:2762-9 D '15
- See also* Alfalfa; Silos

Fees

See also Architects—Fees; Engineers—Fees

Feldspar

- Can an American potash industry be established? E. D. Koepping. *Met & Chem Eng* 15:386-7 O 1 '16
- Feldspars of the New England and north Appalachian states. A. S. Watts. *il diags maps U S Bur Mines Bul* 92:1-173 '16
- Possible sources of potash in America. F. K. Cameron. *J Fr Inst* 180:643-5 D '15; *Same. Sci Am S* 81:34 Ja 15 '16

Fellowships, Industrial. *See* Industrial fellowships**Felt**

- How felt hats are made. *Sci Am S* 82:303 N 4 '16

Fence posts

- Cost of fencing in the north central states. H. N. Humphrey. *il U S Agric Bul* 321:21-32 '16
- Creosoting effective for fence posts. *Eng Rec* 74:414-15 S 30 '16
- Making fence posts out of old flues. *diags Ry Age* 60:512 Mr 17 '16
- Preservative treatment of farm timbers. G. M. Hunt. *il diags U S Agric Farmers' Bul* 744:1-28 '16

Fence posts, Concrete

- Concrete post factory of the Burlington. W. W. Eldridge. *il plan Ry Age* 60:498-500 Mr 17 '16
- How to manufacture good reinforced concrete fence posts. *il Eng & Contr* 45:411 My 3 '16

Fences

- Cost of fencing farms in the north central states. H. N. Humphrey. *il diags maps U S Agric Bul* 321:1-32 '16
- Galvanized corrugated steel and concrete fence. *il diags Eng Rec* 74:537 O 28 '16
- See also* Fence posts

Fences, Concrete

- Construction of concrete fence at Youngstown, Ohio. J. H. Grose. *il Concrete* 9:111-12 O '16
- See also* Fence posts, Concrete

Fencing

- Fencing tournaments for blind men. A. Kennedy. *il Sci Am* 114:355 Ap 1 '16

Fenders, Car. *See* Car fenders**Fermentation**

- Effects of litter on the fermentation of manure. W. E. Tottingham. *J Ind & Eng Chem* 8:511-15 Je '16
- See also* Diastases; Enzymes

Fernandina, Florida

- How the shrimp industry saved Fernandina. C. M. Maigne. *il Sci Am* 115:35 J1 8 '16

Ferri-ferrocyanide

- Influence of the potassium ion and of the calcium ion upon the ferri-ferrocyanide potential. E. P. Schoch and W. A. Felsing. *Am Chem Soc J* 38:1928-47 O '16

Ferric arsenate

- Colloidal arsenates and phosphates of iron. H. N. Holmes and R. E. Rindfus. *Am Chem Soc J* 38:1970-82 O '16

Ferric oxide

- Dissociation of ferric oxide in air. J. C. Hostetter and R. B. Sosman. *diags Am Chem Soc J* 38:1188-98 Je '16

Ferric phosphate

- Colloidal arsenates and phosphates of iron. H. N. Holmes and R. E. Rindfus. *Am Chem Soc J* 38:1970-82 O '16

Ferromanganese

- Development of ferro manufacture. C. J. Stark. *Iron Tr R* 58:24-5+ Ja 6 '16
- Device for premelting ferromanganese. *diag Met & Chem Eng* 15:415 O 1 '16
- Ferromanganese smelting in electric furnaces. H. O. Marcy. *Eng & Min J* 102:627 O 7 '16
- Production of ferromanganese, patented by H. Schagrin. *diags Met & Chem Eng* 15:265 S 1 '16; *Iron Age* 98:769 O 5 '16
- Supplies of ferromanganese. *Iron Age* 98:830-1 O 12 '16

Ferrosilicon

- Production of ferrosilicon in the electric furnace, patented by Herbert C. Harrison. *diag Met & Chem Eng* 14:339 Mr 15 '16

Ferryboats

- Largest gasoline ferryboat; Ramon. *il Sci Am S* 81:60 Ja 22 '16

See also Car ferries

Ferryboats, Municipal

- Management of New York's municipal ferries. *Munic Eng* 50:139 Ap '16

Fertilizers and manures

- Acid soils and the effect of acid phosphate and other fertilizers upon them. S. D. Conner. *J Ind & Eng Chem* 8:35-40 Ja '16
- Commercial fertilizer industry in the United States. L. W. Tucker. *plan pl Boston Soc C E J* 3:331-43 S '16
- Comparison of lime requirement methods. J. W. Ames and C. J. Schollenberger. *J Ind & Eng Chem* 8:243-6 Mr '16
- Conservation of phosphate rock in the United States. W. C. Phalen. *il map Am Inst Min E Bul* 119:1901-34 N '16
- Decomposition of the organic matter of kelp in the soil. A. W. Christie. *J Ind & Eng Chem* 8:425-7 My '16
- Effects of litter on the fermentation of manure. W. E. Tottingham. *J Ind & Eng Chem* 8:511-15 Je '16
- Fertilizer value of activated sludge. E. Bartow and W. D. Hatfield. *il J Ind & Eng Chem* 8:17-20 Ja '16; *Same. Eng & Contr* 44:434-6 D 1 '16; *Abstract. Eng N* 74:1097 D 2 '15
- Importance of fineness of subdivision to the utility of crushed limestone as a soil amendment. W. Thomas and W. Frear. *J Ind & Eng Chem* 7:1041-2 D '15
- Lime; magnesia ratio in soil amendments. W. Thomas and W. Frear. *J Ind & Eng Chem* 7:1042-4 D '15
- Making basic phosphate fertilizer. Ensley, Ala. *il Iron Tr R* 59:22-5 J1 6 '16
- Model manure bin for limiting breeding of flies. *il Sci Am* 113:537 D 18 '15
- Peat-phosphate fertilizer. *Eng & Min J* 101:528-9 Mr 18 '16
- Report on the fertilizer industry. *U S Fed Tr Comm* 269p '16
- See also* Agricultural chemistry; Ammonia; Lime; Nitrification; Potash

Analysis

- Proposed new method for citrate-insoluble phosphoric acid. C. H. Hunt. *J Ind & Eng Chem* 8:251-3 Mr '16
- Proposed rapid method for the analysis of limestone for agricultural processes. A. S. Behrman. *J Ind & Eng Chem* 8:42-5 Ja '16

Laws and regulations

- Report of committee on fertilizer legislation, fertilizer division American chemical society, New York city, September 27, 1916. *J Ind & Eng Chem* 8:1073-4 N '16

Testing

- Activity and availability of insoluble nitrogen in fertilizers as shown by chemical and vegetation tests. F. R. Pember and B. L. Hartwell. *il J Ind & Eng Chem* 8:246-51 Mr '16

Fevers

- See also* Hay fever; Malarial fever; Typhoid fever

Fibers

- Apparatus for digesting crude fiber. J. M. Pickel. *il diag J Ind & Eng Chem* 8:366-7 Ap '16

Fibers—Continued

Furnace for crude fiber incineration. J. M. Pickel. *J Ind & Eng Chem* 8:367 Ap '16

See also Coir; Flax; Nettle fiber; Textile fibers; Textile industry and fabrics; Vulcanized fiber

Fibers, Textile. *See* Textile fibers

Fibrox

Examination of the electrical properties of fibrox. E. F. Northrup. *Met & Chem Eng* 15: 409-10 O 1 '16

Field glasses

Military telescopes and binoculars. *il Sci Am S* 81:340 My 27 '16

Field museum of natural history, Chicago

Sand sluiced around Field museum columns, Chicago, holds them for more fill by conveyors. *il diags Eng Rec* 74:250-2 Ag 26 '16

Files and filing (documents)

Convenient cabinet for filing power-plant charts. *diag plan Elec W* 68:629 S 23 '16

Data filing system. *il Int Marine Eng* 21:342-3 Jl '16

Engineers' operating data file. C. H. Bromley. *il Coal Age* 9:833-5 My 13 '16; *Same. Power* 43:652-4 My 9 '16

Engineers' technical file. F. Lavis; L. B. Krause. *Eng Rec* 73:122 Ja 22 '16

Engineers' technical files should be small, up-to-date and easily kept. L. B. Krause. *Eng Rec* 72:760-1 D 18 '15

Filing and indexing drawings, engineer department, District of Columbia. *Eng & Contr* 45:432 My 10 '16

Filing clippings to find them. *Factory* 16:596+ Je '16

Filing correspondence in a municipal department. R. J. Pee. *Eng N* 75:786-8 Ap 27 '16

Filing in small space. *Factory* 17:306+ S '16

Filing of correspondence. W. C. Hunt. *Ry Age* 60:1091-2 My 19 '16; *Same. Ry Mech Eng* 90:291-3 Je '16

Filing periodical literature. F. E. Weise. *Ry* 57:757 D 11 '15

Filing suggestion. J. Strom. *Power* 43:55 Ja 11 '16

Filing technical literature. E. B. Durham. *Eng & Min J* 101:784-6 Ap 29 '16

Indexing and filing catalogs. *Factory* 16:370+ Ap '16

Keeping papers for reference. *Metal Work* 85: 312 Mr 3 '16

Loose-leaf filing system for city surveys. J. M. Owens. *diags Eng N* 75:346-8 Ag 24 '16

Method of filing continuous-curve station records. G. B. Brush. *il Elec W* 67:942-3 Ap 22 '16

New designs from old parts; indexing by sketch instead of name. F. W. Harris. *il Factory* 17:20-2 Jl '16

Simple and convenient file. S. H. Viall. *il Power* 42:829-30 D 14 '15

Suggestions on filing systems for municipal engineering records. A. Lenderink. *Eng & Contr* 45:96 Ja 26 '16

Files and rasps

Progress in machine shop methods. E. R. Norris. *Iron Tr R* 57:749 O 14 '15; *Excerpt (Resharpening of files)*. *Iron Age* 96:1175 N 18 '15; *Same. Metal Work* 84:743 D 10 '15

Filing machines

Die filing machine with new clamp arm. *il Iron Age* 97:1007 Ap 27 '16

Illinois die filing machine. *il diag Mach* 22: 338-9 D '15

Filling, Hydraulic. *See* Hydraulic filling**Filter cleaning**

Cleaning the Bayside filters. E. G. Manahan. *Am Water Works Assn J* 3:111-16 Mr '16

Experiences in washing rapid sand filters in New Jersey. F. E. Daniels. *Eng & Contr* 45:47 Ja 12 '16

Methods of washing slow sand filters. J. Gaub. *il diags Am Water Works Assn J* 2:596-611 D '15

Filters and filtration

Cleaning the Bayside filters. E. G. Manahan. *Am Water Works Assn J* 3:111-16 Mr '16

Clear drinking water from the Big Muddy. C. L. Edholm. *il Metal Work* 85:49-50 Ja 7 '16

Construction of 160 million gallon filter plant at St. Louis. J. C. Pritchard. *il diag plan Concrete* 8:260-5 Je '16

Darnall siphon filter. *il Eng & Min J* 102:593 S 30 '16

Development of rapid sand filters in Ohio. P. Burgess. *Am Water Works Assn J* 3:175-83 Mr '16; *Same cond. Munic Eng* 51:102-3 S '16

Drifting-sand water filters for Toronto, Ont. *il diags plan Eng N* 76:566-70 S 21 '16

Filter operation. S. M. Van Loan and A. Tolson. *Am Water Works Assn J* 3:117-22 Mr '16

Filter patent claims invalid; Minneapolis wins suit against Ira H. Jewell. *Eng Rec* 74:583-4 N 11 '16

Filtered-water supply for Sacramento recommended in 660-page report. C. G. Hyde, G. H. Wilhelm and F. C. Miller. *Eng Rec* 74: 403-4 S 30 '16

Filtration of water. *Engineer* 121:339-40 Ap 21 '16

Grid above filter surface saves wash water. *Eng Rec* 73:204 F 12 '16

Hints on the design and operation of intermittent sand sewage filters. D. C. Faber. *diags Eng & Contr* 45:168-9 F 16 '16

Improvements in the art of mechanical filtration. T. Fleming, jr. *il diags Eng Soc W Pa* 31:827-57 Ja '16; *Excerpt, with discussion (False bottoms in mechanical filters)*. *Eng & Contr* 46:239-40 S 13 '16; *Discussion. Eng Soc W Pa* 31:858-83 Ja '16; *Excerpt (Automatic coagulant feeding device for mechanical filters)* M. F. Newman. *Eng & Contr* 46:45-6 Jl 12 '16

Iron removal by rapid sand filtration; with discussion. F. E. Hale. *diag Am Water Works Assn J* 3:123-41 Mr '16

Lagonda multiple filter and grease extractor. *il Power* 43:108-9 Ja 25 '16

Magic cistern filter. *il Metal Work* 85:596 Ap 28 '16

New process in the art of filtration. *il Sci Am* 114:201 F 19 '16

New rapid filtration plant near Kilwinning. *il Engineer* 121:542-4 Je 30 '16

Periods of filter service increased 250 per cent. J. W. Ellms and S. J. Hauser. *Eng Rec* 74: 643-4 N 25 '16

Plumbing and heating details of plunges. *il diags Metal Work* 85:188-9 F 4 '16

Pressure chamber equalizes wash-water distribution at Miraflores filters. G. C. Bunker. *il diags Eng Rec* 72:787-9 D 25 '15

Pressure filters. H. C. Stevens. *Am Water Works Assn J* 3:388-97 Je '16; *Excerpts. Eng & Contr* 46:33 Jl 12 '16; *Discussion. Am Water Works Assn J* 3:750-78 S '16

Principles of filtration. D. R. Sperry. *il diags Met & Chem Eng* 15:198-203 Ag 15 '16

Purification of the wastes from the finishing of woolen goods. H. R. Crohurst and A. D. Weston. *Eng & Contr* 45:562-7 Je 21 '16

Rapid filters over pipe gallery at Alton, Ill. P. Hansen. *Eng Rec* 73:318 Mr 4 '16

Red water and suggested remedies. N. S. Hill, jr. *Stevens Ind* 33:126-47 Ap '16

Resanding problems at Albany. G. E. Willcomb. *Am Water Works Assn J* 3:163-9 Mr '16

Small mechanical filter plant, with automatic equipment throughout. Pleasanton, Kan. E. E. Harper. *diags Eng & Contr* 46:246-7 S 13 '16

Special devices installed to improve operation of new mechanical filters at Chillicothe, Mo. E. E. Harper. *diags Eng Rec* 74:320-2 S 9 '16

Theory and practice in the filtration of water. W. Clemence. *il diags Engineer* 121:344-5, 356 Ap 21-28 '16; *Discussion. 121:376, 395 My 5-12 '16*

Water-filtration experiences. *Eng N* 74:1244-5 D 23 '15

Water softening by filtration through artificial zeolite; with discussion. D. D. Jackson. *il Am Water Works Assn J* 3:423-33 Je '16

Wooden filters prove economical for temporary exposition water supply. E. C. Eaton. *il diags plan Eng Rec* 72:748-51 D 18 '15

See also Filter cleaning; Oil filters; Oil separators; Sewage disposal—Filtration; Water purification; Water supply

Filters and filtration—Continued**Testing**

Tests of loss of head in strainers, orifices and sand. L. Pearce, diags Am Water Works Assn J 3:504-13 Je '16; Same cond. Eng Rec 73:385-6 Mr 18 '16

Filters and filtration (metallurgy)

Slime filter, and method of forming and washing solid cakes, patented by D. J. Kelly. Met & Chem Eng 14:102 Ja 15 '16
Slime filter, patented by C. Butters. Met & Chem Eng 14:397 Ap 1 '16

Filters and filtration (technical chemistry)

Applicability of the paper pulp filter to the separation of solids from liquids. S. L. Jodidi. J Fr Inst 182:61-7 Jl '16
Application of the paper pulp filter to the quantitative estimation of calcium and magnesium. S. L. Jodidi and E. H. Kellogg. il J Fr Inst 181:217-32 F '16
General applicability of the paper pulp filter to quantitative analysis. S. L. Jodidi and E. H. Kellogg. J Ind & Eng Chem 8:317-19 Ap '16
Rapid filter for turbid liquids. R. C. Shuey. diag J Ind & Eng Chem 8:523 Je '16

Finance

See also Banks and banking; Budget; Capital; Corporations; Credit; Debts, Public; Government accounting; Investments; Public utilities—Finance; Railroads—Finance; Roads—Finance; Sinking funds; State finance; Street railroads—Finance; Tariff; Taxation; Waterworks—Finance

Finance, Municipal. See Municipal finance**Financial statements**

Financial statement. H. Hillman. Inland Ptr 57:236-7 My '16
Form of financial statement. J Account 21:217-18 Mr '16
Form of financial statement. H. D. Greeley; C. E. Freeman. J Account 21:275-80 Ap '16

Finger prints

Origin, classification and uses of finger prints. F. Kuhne. il Sci Am 114:357+ Ap 1 '16

Finials

Home instruction for sheet metal workers. W. Neubecker, diags Metal Work 86:143-5, 276-7, 373-4, 499-500 Ag 4, S 1, 22, O 20 '16

Fir

Spruce and balsam fir trees of the Rocky mountain region. G. B. Sudworth. il 10 maps U S Agric Bul 327:1-43 '16

See also Douglas fir

Fire

See also Combustion; Fires; Flames; Smoke; Spontaneous combustion

Fire alarms

Excess indicator for fire alarm. G. A. Schneider, diag Elec R & W Elec'n 67:1016 D 4 '15
Factory fire-alarm systems. il diag Elec W 68:144 Jl 15 '16
Features of Wilmington fire-alarm system. G. A. Broder. il Elec R & W Elec'n 69:772-4 O 28 '16
Fire alarm for use with telephone systems. diag Elec W 67:1007-8 Ap 29 '16
Improvements in Philadelphia's fire alarm system. il Munic J 40:71-3 Ja 20 '16
Using telephone lines for an automatic fire alarm system. il Sci Am 115:127 Ag 5 '16

Fire apparatus

Fire department apparatus in service; statistics. Munic J 41:221-34 Ag 24 '16
Hand drawn fire apparatus in three hundred cities; tabulation. Munic J 41:319-20 S 14 '16
Mechanical fire-fighting equipment. G. G. Blyth. il Am For 22:171-2 Mr '16
Railroad fire-fighting apparatus used in Canada. il Sci Am 114:661 Je 24 '16

Cost of operation

Comparison of cost of auto and horse-drawn apparatus. il Munic Eng 51:62-3 Ag '16

Fire apparatus, Motor

Camden's all-motor fire department. il Munic J 41:213-15 Ag 24 '16
Did Lansing buy first pumper? il Munic Eng 50:198-201 My '16

Electric fire vehicles increasing. A. J. Marshall. Munic Eng 51:189-90 N '16

Electrically driven fire apparatus makes successful hill-climbing test in Paterson. N. J. Elec R & W Elec'n 68:73 Ja 8 '16; Same cond. Elec W 66:1376-7 D 18 '15

Fire department apparatus in service; statistics. Munic J 41:227 Ag 24 '16

Fire department, Grand Rapids, Mich., makes motor apparatus. C. W. Shafer. il Munic J 39:947-8 D 23 '15

Ford first aid chemical. il Munic Eng 49:241 D '15

Hose and chemical wagon for Waukesha, Wis. il Munic J 40:119-20 Ja 27 '16

Lent motor pumping engine. il Munic J 40:630-1 My 4 '16; Munic Eng 51:60-1 Ag '16

Mack pumping engine. il Munic Eng 51:141 O '16

Motor apparatus in fire departments. il Munic Eng 50:64-6 F '16

Motor equipment of fire departments; tabulation. Munic Eng 50:sup41+, 201-3 Ap-My '16

Motor fire and other vehicles in cities. Munic J 40:654 My 11 '16

Motor fire apparatus costs. il Munic Eng 50:236-8 Je '16

Motor fire apparatus increases fire department efficiency. il Munic Eng 49:226-3 D '15

Motorization effects big savings in New York fire department. il Munic Eng 50:23-4 Ja '16

Motorizing horse-drawn equipment. il Munic Eng 51:142 O '16

Motorizing the small department. il Munic Eng 51:186-8 N '16

New developments in fire apparatus. il Munic Eng 50:107-8 Mr '16

Progress in fire motorization. il Munic Eng 50:162-4 Ap '16

See also Fire engines, Motor

Fire brick

Deterioration of refractory materials. H. B. Cronshaw. il Iron Age 98:1056-9 N 9 '16

Firebrick for boiler furnaces. Am Gas Light J 104:50 Ja 24 '16

Manufacture and tests of silica brick for the byproduct coke oven. K. Seaver. il Am Inst Min E Bul 105:1913-27 S '15; Same. Met & Chem Eng 13:861-6 N 15 '15; Abstract. Am Soc M E J 37:610 O '15; Excerpts. Am Gas Light J 104:12-13 Ja 3 '16; Discussion. Am Inst Min E Bul 113:937-41 My '16

Metal oxide and sulphide impregnation of firebrick. N. B. Davis. pls Econ Geol 10:663-75 N '15

Patented checker brick shapes. il Am Gas Light J 104:173 Mr 13 '16

Reducing maintenance cost in boiler furnaces. C. M. Crewe. diags Elec W 66:1433-4 D 25 '15

Refractories. W. H. Kelley. Am Gas Light J 104:166-7 Mr 13 '16

Silica in retort settings. Sci Am S 82:156 S 2 '16

Study of the silica refractories. J. S. McDowell. bibliog il Am Inst Min E Bul 119:1999-2055 N '16

Testing

Aspects of the testing of refractories. A. V. Bleining. il Eng Soc W Pa 32:612-34; Discussion. 634-46 O '16

Practical methods for testing refractory fire brick. C. E. Nesbitt and M. L. Bell. il diags Met & Chem Eng 15:205-12 Ag 15 '16; Same. Iron Tr R 59:71-7 Jl 13 '16; Abstract. Iron Age 98:84-5 Jl 13 '16; Abstract. Am Soc M E J 38:763-4 S '16

Fire clay

Effect of loads on the refractoriness of fireclays. diag Engineer 121:490 Je 9 '16; Excerpt. Met & Chem Eng 15:45 Jl 1 '16

Pennsylvania fire clay. L. C. Morganroth. Am Inst Min E Bul 110:475-81 F '16; Discussion. 113:906-7 My '16

Properties of some European plastic fire clays. A. V. Bleining and H. G. Schurecht. U S Bur Stand Tech Pa 79:1-34 '16

See also Fire brick

Fire damp. See Firedamp**Fire departments**

Chicago fire department. G. W. Rutherford. Munic J 41:216-17 Ag 24 '16

Fire departments—Continued

Fire department, Grand Rapids, Mich., makes motor apparatus. C. W. Shater. *il* Munic J 39:947-8 D 23 '15

Fire prevention in Portland. H. White. *il* Munic J 40:137-8 F 10 '16

Minneapolis fire department inspections. W. L. Scott. *Munic J* 41:289-90 S 7 '16

Portland's drill tower. H. White. *il* Munic J 40:274 F 24 '16

Watertown, N. Y., fire department. *Munic J* 41:123 Ag 3 '16

See also Fire extinction; Fire protection; Fire service

Rescue work

Pittsburgh's fire department rescue squads. *il* Munic J 40:830-1 Je 15 '16

Fire engines, Motor

Efficient motor-pumping engine. *diag* Sci Am 115:178 Ag 19 '16

See also Fire apparatus, Motor

Fire escapes

Fire escape for the horse. *il* Sci Am 115:326+ O 7 '16

Fire extinction

Automatic fire extinguisher. *diags* U S Agric Bul 379:20-2, pl 10-11 '16

Chemical extinguishment of fires on a large scale. *Munic Eng* 49:239 D '15

City fire limits. A. Blauvelt. *il* *diag* Am Water Works Assn J 2:629-38 D '15; Excerpt (Controlling the hot blast in city fires). *Eng M* 50:781 F '16

Extinguishing oil tank fires with a blanket of foam. *il* Sci Am 115:44 J1 8 '16

Foam-system installation for fighting oil fires. C. P. Bowie. *il* *diags* Eng N 75:794-7 Ap 27 '16

Hazards in handling gasoline. G. A. Burrell. U S Bur Mines Tech Pa 127:7-9 '15; Abstract. *Power* 43:126-7 Ja 25 '16

Relative value of different fire extinguishers. *Engineer* 121:462-3 Je 2 '16

Successful chemical pumper test. *il* Munic Eng 51:189 N '16

See also Fire departments; Fire service; Hydrants

Fire houses

Building for the fire and police departments, Winchester, Mass., and fire stations at Weston and Watertown, Mass.; views and plans. *Brickb* 25:pl 10-12 Ja '16

Irrington's bungalow fire house. H. White. *il* Munic J 41:8 J1 6 '16

Fire insurance. *See* Insurance, Fire**Fire-places.** *See* Fireplaces**Fire prevention.** *See* Fire protection**Fire protection**

Automatic control system that precludes fire and panic in picture theatres. *il* Sci Am 115:104 J1 29 '16

Backing up your fire equipment with men. *il* Factory 17:389-91 O '16

City fire limits. A. Blauvelt. *il* *diag* Am Water Works Assn J 2:629-38 D '15

Economic significance of fire waste. C. E. Meek. *Textile World* 51:4127+ S 23 '16

Fighting fires—before they start. *Factory* 16:298+, 530+, 17:56+, 412+, 708+ Mr, My, J1, O, D '16

Fighting fires in early Chicago. F. A. Eastman. *il* Munic Eng 51:99-100 S '16

Fire prevention in electrical stations. H. L. Gannett. *Elec R & W Elec'n* 69:561 S 23 '16

Fire protection and the schools. *plans* Arch Rec 39:390-3 Ap '16

Fire protection for mills. D. Lay. *Eng & Min J* 101:602-3 Ap 1 '16

Fire waste and city planning. *il* Arch & Bldg 48:113-14 J1 '16

Garage business—buildings, equipment, methods. P. M. Heldt. *diags* Horseless Age 37:266-7, 320-1+ Ap 1-15 '16

How to reduce your loss from foundry fires. F. H. Wentworth. *Foundry* 44:440-2 O '16; Same. *Iron Tr R* 59:850-2 O 26 '16; Same cond. *Iron Age* 98:698-9 S 28 '16

Humidity a factor in cotton picker fires. F. J. Hoxie. *Textile World* 51:2271+ My 6 '16

Means and methods of controlling factory fires. L. H. Kunhardt. *Textile World* 51:705+ Ja 15 '16

Plant fire protection. F. M. Leland. *Eng & Min J* 102:911-12 N 18 '16

Relation of cotton conditioning to picker fires. F. J. Hoxie. *il* *Textile World* 51:4143+ S 23 '16

Safeguarding of public records. *Am Ind* 16:33 Mr '16

Sharp clang of the fire gong finds a prompt answer in American steel plants. *il* *Iron Tr R* 58:1374-5 Je 22 '16

Today and tomorrow in fire and accident prevention. F. H. Wentworth; W. H. Cameron. *Factory* 17:402-3 O '16

Will your watchman stand the test? *Factory* 17:410-11 O '16

See also Fire departments; Fire extinction; Fireproof construction; Fireproofing; Railroads—Fire protection; Underwriters' laboratories

Laws and regulations

Fire prevention laws and administrative methods. *Munic J* 41:218-20 Ag 24 '16

Fire protection association, Railway. *See* Railway fire protection association

Fire-resisting materials

How concrete stands fire. *Factory* 17:480+ O '16

New method renders wooden shingles fire retardant. *Eng Rec* 72:717 D 11 '15

Shingle roof. E. R. Hardy. *Arch & Bldg* 48:129-30 Ag '16

Three reinforced-concrete buildings alone resist flames in Paris, Texas, fire. *il* *diag* Eng Rec 73:572-3 Ap 29 '16

See also Concrete construction; Refractory materials

Testing

Burning typical office equipment in test room. *il* Eng Rec 72:766-7 D 18 '15

Gas furnace for testing metal doors, windows and shutters. *Metal Work* 85:405 Mr 24 '16

How fire conditions are reproduced in the laboratory. *il* Sci Am 115:319+ O 7 '16

Largest panel-testing furnace in this country constructed at Washington. *il* *diags* Eng Rec 73:800-1 Je 17 '16

Panel testing furnace is of exceptional size. J. E. Latta. *Eng Rec* 73:323 Mr 4 '16

Pittsburgh laboratories will test fireproofing materials. *Iron Tr R* 58:590 Mr 16 '16

Proposed series of fire-resistance tests of columns. *Eng Rec* 72:800 D 25 '15

Simulating the conditions of an actual fire in testing a record safe. *il* Sci Am 114:429 Ap 22 '16

Test compounds for making wood fire-retardant; abstracts. H. Von Schrenk and A. Von Schrenk. *Eng Rec* 73:796 Je 17 '16; *Ry R* 59:192-3 Ag 5 '16

Fire service

Data and discussion on cast iron pipe joint tests for the San Francisco high pressure fire system. A. J. Bowie. *diags* Eng & Contr 46:40-4 J1 '16

Determination of the value of fire protection afforded by the Queens county water company. J. Goodman. *map* Am Water Works Assn J 3:450-61; Discussion. 461-8 Je '16

Insurance rates call for grading of cities; committee report of New England water works association. *Eng Rec* 74:389-90 S 23 '16

Losses in fire hydrants. C. M. Saville. *Munic J* 40:38-40 Ja 13 '16

Notes on fire protection. T. N. Hooper. *Am Water Works Assn J* 3:239-41 Mr '16

Plans proposed for Boston fire—service system. J. Rourke. *Eng Rec* 74:438-9 O 7 '16

Water for fires at Hartford. C. M. Saville. *Eng N* 75:165 Ja 27 '16

See also Fire departments; Hydrants; Water supply

Fire stations. *See* Fire houses**Firearms**

Development of military small arms. O. B. Mitcham. *il* Sci Am S 81:172-4 Mr 11 '16

See also Arms and armor; Pistols; Rifles; Shooting

Firearms—Continued

Sights

- How a rifle is sighted. *il Sci Am* 113:516+ D 11 '15
 How a rifle is sighted. W. Winans. *Sci Am* 114:39 Ja 22 '16
 Machining barrels and sight parts. D. T. Hamilton and others. *il diags Mach* 22:643-53 Ap '16
 Open sights vs. peep sights. C. C. Grant. *Sci Am* 114:618 Je 10 '16
 Open sights vs. peep sights. E. C. Crossman. *Sci Am* 114:401 Ap 15 '16
 Rifle sighting from an engineer's standpoint. R. Yates. *Sci Am* 114:639 Je 17 '16

See also Speed sighting; Telescopic sights

Firebrick. *See* Fire brick

Firebomb

- Effects of temperature and pressure on the explosibility of methane-air mixtures. G. A. Burrell and L. W. Robertson. *diag U S Bur Mines Tech Pa* 121:1-13 '16

- Limits of inflammability of mixtures of methane and air. G. A. Burrell and G. G. Oberfell. *diags U S Bur Mines Tech Pa* 119:1-27 '15

- New fire-damp detector; abstracts. G. A. Burrell. *il diags Coal Age* 9:157-8 Ja 22 '16; *Eng M* 50:940 Mr '16; *J Ind & Eng Chem* 8:365-6 Ap '16; *Sci Am* 114:422 Ap 22 '16

- New fire-damp tester. *Sci Am* 114:266 Mr 4 '16

- Researches on fire-damp. E. Hauser. *il diags Am Inst Min E Bul* 110:521-34 F '16; *Discussion*. 113:960-7 My '16

See also Mine gases

Fireflies

- Experiments on the nature of the photogenic substance in the firefly. E. N. Harvey. *diag Am Chem Soc J* 37:396-401 F '15; *Same*. *Sci Am S* 82:157 S 2 '16

Fireless cookers

- Gas fireless cooking. H. T. Owens. *il Am Gas Light J* 104:385-8 Je 19 '16

Firemen. *See* Fire departments

Fireplaces

- Concrete fireplace and concrete pergola columns at low cost. *il Concrete Cem* 8:6 Ja '16
 Fireplaces in an old English castle. J. W. Overend. *il Brickb* 25:11-12 Ja '16

- Interesting residence on Watchung Mt. has features of concrete. *il plans Concrete Cem* 8:9-11 Ja '16

See also Mantels

Fireproof construction

- Does the menace of the wood shingle justify its abolition? T. W. Haney. *Metal Work* 86: 583-4 N 10 '16

- Example of fireproof residence construction at Kansas City, Mo. *il plans Concrete Cem* 8: 14-16 Ja '16

- Fireproof construction under test in the Augusta fire. W. L. Stoddart. *il Arch & Bldg* 48:168-70 N '16

- Meaning of fireproof construction. *Bldg Age* 38:69-70 N '16

- Modern fire-resisting cottage. *il diag plans Bldg Age* 38:67-70 My '16

- Typical two-family house complies with Salem's strict building code. C. D. Gilbert. *il diags plan Concrete Cem* 8:24-6 Ja '16

See also Building laws; Concrete, Reinforced; Concrete construction; Fire protection; Fire-resisting materials; Fireproofing; Steel construction

Fireproofing

- Experimental notes on the preparation of fireproof writing paper. R. G. Myers. *J Ind & Eng Chem* 8:388-9 O '16

- Fire-proofing stage scenery. *Sci Am S* 81:51 Ja 22 '16

- Perfecting a fire-proofing solution. I. McPeak. *il Sci Am* 115:212 S 2 '16

- Protecting cables in manholes from explosion of adjacent cables. A. F. Hovey. *Elec Ry J* 48:1068 N 18 '16; *Same*. *Elec W* 68:1009 N 18 '16

See also Fireproof construction

Fires

- Fire destroys infant city. Hopewell, Va. *il Eng N* 74:1197-8 D 16 '15

- Fire or explosion wrecks part of concrete warehouse of Mullen & Buckley, Far Rockaway, N. Y. *il plan Eng N* 76:956-8 N 16 '16

- Ratio of electrically-caused fires to those due to gas in ten states slightly over $\frac{2}{3}$ to 1. R. F. Pierce. *Am Gas Light J* 105:313-14 N 13 '16

- Seventeen millions lost in fires in one day. *Eng N* 75:939 My 18 '16

See also Camp fires; Fire alarms; Fire protection; Forest fires; Mine fires; Spontaneous combustion

Fires at sea

- Battling with 300 tons of calcium carbide. R. G. Skerrett. *Sci Am* 115:171 Ag 19 '16

Firing

- Analyzing a marine steam plant. E. N. Percy. *Int Marine Eng* 21:298-300 Je '16

- Boiler-room practice at Warrior Ridge. J. C. Scholl. *Power* 43:93-4 Ja 18 '16

- Directions for firing a boiler without making smoke. *Heat & Ven* 13:54 O '16

- Explosion of a firing tool. *diag Power* 43:611-12 My 2 '16

- Firemen's bonus successful. C. M. Rogers. *Power* 42:906 D 28 '15

- Firing instructions. A. P. Hyde. *Power* 44: 607 O 31 '16

- Firing soft coal under naval boilers. W. L. De Baufre. *Power* 44:182-4 Ag 1 '16

- Series of lectures given to firemen at Philadelphia water pumping stations. *Eng & Contr* 45:294-6 Mr 29 '16

- Smoke-stack periscope. W. Sailes. *diag Power* 43:195 F 8 '16

- Stoking small anthracite coal. W. O. Rogers. *il diags Power* 44:540-1 O 17 '16

- Stopping water-level fluctuations. T. B. Hyde. *Power* 43:541-2 Ap 18 '16

See also Combustion; Fuel; Furnaces; Stokers, Mechanical

First aid in illness and injury

- Elementary first aid for the miner. W. A. Lynott and D. Harrington. *il U S Bur Mines Circ* 23:1-24 '16

- Finding splinters in fingers. *Eng & Min J* 102: 749 O 21 '16; *Same*. *Coal Age* 10:831 N 18 '16

- First aid for mill employes. *il Textile World* 51:510+ Ja 15 '16

- Folding cot room. *il Coal Age* 8:980 D 11 '15

- Lightning; its risks and how to avoid them. E. Thomson and others. *il Gen Elec R* 19: 172 Mr '16

- Oxygen treatment for carbon monoxide poisoning. A. F. Knoefel. *Coal Age* 9:458 Mr 11 '16

- Progress of first-aid work in British Columbia. *Eng & Min J* 102:815-16 N 4 '16

- Safe practice at blast furnaces. F. H. Willcox. *il U S Bur Mines Tech Pa* 136:62-8 '16

- Success in first-aid work. *Coal Age* 9:605, 644-5, 766, 1102-3 Ap 1-8, 29, Je 24 '16

- Value of inflicting pain by a blow in resuscitation after electrical shock. W. P. Strickland. *Elec W* 67:498 F 26 '16; *Same*. *Elec R & W Elec N* 69:473 S 9 '16

- What is first aid? F. B. Kilmer. *Coal Age* 9: 465-6 Mr 11 '16

See also Accidents, Industrial; European war—Medical and sanitary affairs; Mine rescue work

Fish car

- All-steel fish car for the United States Bureau of fisheries. *il diags Ry R* 59:181-3 Ag 5 '16

- Car for the transportation of live fish. *il diag plan Ry Age* 61:116-17 Ji 21 '16

Fish culture

- Giant fish incubators. *il Sci Am* 115:326 O 7 '16

Fish incubators. *See* Fish culture

Fisheries

- From herring to halibut; strong measures necessary to keep American fishermen from being driven off the north Pacific banks. M. Woolley. *il Sci Am* 114:620 Je 10 '16

See also Sealing

Fishes

Poisoning fish by cyanide. Eng & Min J 101: 23-4 Ja 1 '16

See also Halibut; Shrimps

Fishing. See Trawls and trawling**Fitting (machinery)**

Gaging and inspection methods. D. T. Hamilton. il diags Mach 23:95-118 O '16

Fiume, Hungary**Public works**

Public utilities of Fiume, Hungary. Munic J 41:125-6 Ag 3 '16

Fixtures. See Electric light fixtures; Gas fixtures; Lighting fixtures; Street lighting fixtures**Fixtures (machine tool).** See Machine tools—Fixtures**Flags**

Flag that waves without a breeze. il Elec W 68:782 O 14 '16

United States

American flags; interesting relics in the National museum. Sci Am S 82:27 Jl 8 '16

Cotton bunting; navy and commerce departments favor it. Textile World 51:1283+ Mr 4 '16

Flags, Electric

Chicago's huge new 3000-lamp electric flag. il Elec W 67:773 Ap 1 '16

How the flag campaign has spread and grown. il Elec W 67:705-7 Mr 25 '16

Flames

Bunsen burner design and operation. G. C. Carnahan. Am Gas Light J 104:218-20 Ap 3 '16

Combustion of gas and flame temperature. F. Peiter. Iron Tr R 58:651 Mr 23 '16

See also Gas burners; Gas lighting; Lighting; Oxyacetylene flame; Photometry

Flanges

See also Pipe flanges; Pipe joints

Flannel

Definitions of flannel heard in customs case. Textile World 51:415+ Ja 8 '16

Flashlight photography. See Photography, Flashlight**Flashlights, Electric.** See Electric flashlights**Flat-irons, Electric** See Electric irons**Flavoring extracts**

Analysis of non-alcoholic lemon and orange extracts. E. L. Redfern. J Ind & Eng Chem 8: 421 My '16

See also Vanilla

Flax

Development of an American linen industry. W. A. G. Clark. U S Bur For & Dom Com 122:1-23 '16

False flax, a little-known plant of value. Sci Am 114:305 Mr 18 '16

Flax possibilities in United States. Textile World 51:3889-90 S 9 '16

Increasing the profits in flax mills J. A. McCracken. il Sci Am 114:402+ Ap 15 '16

Fleece fabrics

Proportions of yarn in fleece fabric. E. Tompkins. Textile World 51:1857 Ap 15 '16

Flight

Flying sensation; could it be realized? C. Dienstbach. il Sci Am 114:667+ Je 24 '16

Flint, Michigan

Land speculation in Flint. Am Inst Arch J 4:368-70 S '16

Floating equilibrium

Further study of floating equilibrium. T. W. Richards and G. W. Harris. Am Chem Soc J 38:1000-11 My '16

Floating hospitals. See Hospital ships**Flocculation**

Sedimentation and flocculation. E. E. Free. bibliog il diags Eng & Min J 101:429-32, 509-13 Mr 4, 18 '16; Rate of slimes settling. Eng & Min J 101:681-6 Ap 15 '16

Flood control

Battle over the Miami flood-prevention plans. H. M. Chittenden. map Eng N 76:906-10 N 9 '16

Cat and kitten holes in outlet of dam control high and low flood discharges. diags Eng Rec 74:162-3 Ag 5 '16

Check dams in the mountains of Los Angeles county. F. H. Olmsted. Eng N 75:551 Mr 23 '16

Columbus river widening for moderate floods. Eng N 76:1055-6 N 30 '16

Comment on civil engineers' flood-control report. T. G. Dabney. Eng N 76:370 Ag 24 '16

Control of mountain torrents by check dams. F. H. Olmsted. il Eng N 75:314-15 F 17 '16

Dayton flood-protection plans ready for adoption. Eng N 75:485-6 Mr 9 '16

Draining north Holland after January's great flood. J. Spaander. il diags map Eng N 76: 773-7 O 26 '16

Engineers recommend both reservoirs and levees to protect Columbus from floods. Eng Rec 73:419 Mr 25 '16

Enlarging a flood channel by unusual methods. il plan Eng N 75:758-9 Ap 20 '16

Final flood-protection plan for Miami valley. map Eng N 75:674-5 Ap 6 '16

Flood control in Los Angeles county in California. il Eng N 75:272-5, 310-13 F 10-17 '16

Flood prevention at Dayton. il Eng N 75:43-4 Ja 6 '16

Flood-prevention plans in Los Angeles county, California. J. B. Lippincott. Eng N 75:861-2 My 4 '16

Flood protection at Columbus. Eng N 75:490-1 Mr 16 '16

Flood protection in Indianapolis. il Munic Eng 50:124-7 Ap '16

How Olean, N. Y., promoted and financed a \$300,000 flood abatement project. diag plan Eng & Contr 46:347 O 18 '16

Los Angeles county, Cal., flood project. Eng & Contr 45:sup29-30 F 9 '16

Memphis flood protection. diags map Eng N 75: 890-4 My 11 '16

Miami conservancy plans are completed. Eng Rec 73:348 Mr 11 '16

Miami flood-prevention plan approved by court. Eng N 76:1055 N 30 '16

Miami valley flood protection project. Eng & Contr 45:sup22-3 Mr 8 '16

Million-dollar project, just started, will remove flood menace at Erie, Pa. F. Gannett. Eng Rec 74:236-7 Ag 19 '16

Mississippi river flood records studied with relation to levee grades. A. L. Dabney. map Eng Rec 73:452-5 Ap 1 '16

Reinforced-concrete drift catcher at Erie, Penn. T. E. Seelye. diags Eng N 76:795 O 26 '16

Retarding basin plan of flood control for Dayton, O., and the Miami valley. A. E. Morgan. diags map Eng & Contr 45:382-5 Ap 26 '16

River diversion and flood control in Missouri. il map Eng N 76:342-5 Ag 24 '16

Small check dams, in series, lessen flood velocities in California ravines. H. F. Olmsted. il Eng Rec 73:636-8, 674-5 My 13-20 '16

See also Reservoirs; Rivers—Regulation

Flood lighting. See Light projection**Floodgates**

When to open the flood gate. Eng Rec 74:332 S 9 '16

Floods

Arkansas and White river floods of 1916. E. J. Dent. Eng N 75:480-1 Mr 9 '16

Bridge damage heavy in West Virginia flood. Eng Rec 74:256 Ag 26 '16

California floods wreck Otay rock-fill dam. il diags map Eng Rec 73:225-8 F 12 '16

California rainfall and runoff and recent floods. M. J. Bartell and R. P. McIntosh. Eng N 75: 686-8 Ap 13 '16

Cloudburst on Cabin Creek. J. Keely. Coal Age 10:756-7 N 4 '16

Colorado river conditions this year unprecedented. L. M. Lawson. Eng Rec 74:346 S 16 '16

Disastrous floods in southern California. il Ry Age 60:790-2 Ap 7 '16

Father of waters in flood. E. M. Markham. Eng N 75:286-7 F 10 '16

Flood damage in San Diego. il Munic J 40:332-3 Mr 9 '16

Floods in southern California summarized to Jan. 25. Eng N 75:239-40 F 3 '16

Floods—Continued

- Holland in the grip of its old enemy. W. J. L. Kiehl. il Sci Am 114:235+ Mr 4 '16
 Illinois river flood. L. K. Sherman. Eng N 75:550-1 Mr 23 '16
 Ohio, Mississippi, Arkansas and White river floods. Eng N 75:292-3 F 10 '16
 Phenomenal rains the cause of southern floods. il map Eng N 76:183-6 JI 27 '16
 Recent serious floods in eastern Iowa. il Ry Age 60:1575-6 Je 30 '16
 Record flood from melting snows passes through Rochester. N. Y. J. P. Wells. il maps Eng Rec 73:476-8 Ap 8 '16
 San Luis Rey river floods of January, 1916. E. R. Bowen. il Eng N 75:383-5 F 24 '16
 Southern floods and their forestry lessons. H. H. Chapman. il Am For 22:476-9 Ag '16
 Southern rains and floods of July, 1916, exhibited. A. J. Henry. maps Eng N 76:886-7 N 9 '16

See also Flood control

Floors

- Acid-proof floor covering for pickling and plating plants. K. Seaver. Metal Ind n s 14: 395 S '16
 Acid-proof mastic for floors and tank linings. D. T. Pierce. Metal Ind n s 14:395 S '16
 Bloxonend flooring. il Ry Age 61:707 O 20 '16
 Comparative designs of office buildings; floors and floor construction. F. Ruchti. diags W Soc E J 21:662-6 O '16
 Composition flooring in the concrete field. Concrete Cem 8:34-5 Ja '16
 Construction to make battery-room floors impervious to acid. il Elec W 67:433 F 19 '16
 Creosoted wood block floors for railroad buildings. il Ry Age 59:1145-9 D 17 '15
 Engine-room floors. A. L. Haas. Int Marine Eng 20:563 D '15
 Floors that suit your needs. H. F. Porter. il Factory 16:136-8, 230-1 F-Mr '16
 Floors that suit your needs. W. P. Anderson. diag Factory 16:343-4 Ap '16
 Hard pine timbers versus steel beams for mill floors. G. H. Perkins. Textile World 51:1875 Ap 15 '16
 Increasing popularity of creosoted wood blocks for flooring. Sci Am 115:83 JI 22 '16
 Investigation of composition flooring. R. R. Shively. J Ind & Eng Chem 8:679-82 Ag '16; Same cond. Concrete 9:92-4 S '16; Same cond. Eng & Contr 46:282-4 S 27 '16
 Kreolite wood block paving and flooring for railroad stations. il Ry R 59:218-19 Ag 12 '16
 Mastic flooring for industrial buildings. il Eng & Contr 46:280-1 S 27 '16
 Mastic floors for railroad buildings. il Ry Age 61:154 JI 28 '16
 Railroad shop, engine house and freight house floors; committee report. Ry Age 61:746-7 O 27 '16
 Special wood block design for mill floors. il Eng & Contr 46:180 Ag 23 '16
 Treated wood block for factory and shop flooring. C. H. Teesdale. Ry R 58:148-9 Ja 22 '16; Same cond. Ry Age 60:127-8 Ja 21 '16; Summary. Eng Rec 73:114-15 Ja 22 '16; Abstract. Elec Ry J 47:167 Ja 22 '16
 Use of oak flooring in a church. Bldg Age 38: 57 My '16
 Why use wood floor. il Factory 17:84+ JI '16
 See also Bridges—Floors; Mosaics; Pavements
- Cost**
 Cost per square foot of floor read from charts. A. P. Hoover. Eng Rec 72:793-4 D 25 '15
- Fillers**
 Fillers for cracks in floors. Bldg Age 38:26 Ag '16
- Testing**
 Tests of hollow-tile, flat-arch floor slabs show effects of concentrated loads. C. T. Morris. il Eng Rec 73:584-5 Ap 29 '16
- Floors, Concrete**
 Big stack falling from broken boom tests concrete floor. H. Blood. il diag Eng N 76:618-20 S 28 '16; Same cond. Eng Rec 74:507 O 21 '16
- Careful design needed for wall-bearing flat slabs. A. M. Wolf; C. Von Mueller. Eng N 76:614-15 S 28 '16
 Concrete floor construction for a residence. diags Concrete 8:84-6 F '16
 Concrete floor falls after early removal of forms. E. B. McGuire. il Eng N 76:1050-1 N 30 '16
 Concrete-floor insulation. diag Power 44:345 S 5 '16; Same. Eng N 76:508-9 S 14 '16
 Concrete floors for roller skating. J. E. Freeman; L. C. Wason. Concrete 9:162 N '16
 Concrete floors improved by surface treatment. Concrete Cem 7:222 D '15
 Concrete floors in dwelling houses. H. Laughlin, jr. Concrete Cem 6:41 Ja '15; Same cond. Bldg Age 38:27 F '16
 Concrete floors in foundries. W: M. Kinney; C. H. Fuller. Concrete Cem 7:213 D '15
 Concrete floors in the home. Sci Am S 82:25 JI 8 '16
 Concrete floors in the home. I. J. Gill. Concrete 8:194 My '16; Same. Bldg Age 38:31-2 Ag '16
 Concrete reservoir floor used for dancing. Concrete 8:141 Mr '16
 Failure of Roxbury school building apparently caused by faulty brick piers; abstracts. S. E. Thompson. il Eng Rec 74:294-6 S 2 '16; Concrete 9:116-17 O '16; Eng N 76:262-5 Ag 10 '16
 Flat-slab floor. A. O. Powell. Eng N 75:1197 Je 22 '16
 Groined arch as a means of concrete floor construction. H. W. Brown. il diags Boston Soc C E J 3:439-64 O '16; Excerpts. Eng & Contr 46:446-8 N 22 '16
 Longest span slab used in Chicago hospital. J. N. Jensen. il plan Eng Rec 74:233 Ag 19 '16
 Manufacture and sale of reinforced concrete floor beams. il diags Concrete 9:157-9 N '16
 Patching cement floors. Foundry 44:315 Ag '15
 Pittsburgh ruling on flat-slab concrete-floor systems. J: A. Ferguson. Eng N 75:910-11 My 11 '16
 Placing warm-air registers in a concrete floor. A. C. Hewitt. il Eng N 75:375-6 F 24 '16
 Raised screeds and modified straightedge simplify leveling concrete floors. il Concrete 9: 129 O '16
 Removing concrete covering of a wooden floor. Bldg Age 38:56 D '16
 Roughening concrete floor for resurfacing. C. A. Hirschberg. il diag Eng N 76:755-6 O 19 '16
 Slab-and-beam floor without shear stirrups. J. H. Byrd. diag Eng Rec 74:324-5 S 9 '16
 Slab design to use less concrete is verified by experiments. R. B. Melvin. il diags Concrete Cem 7:208-10 D '15
 Solid floors for through girder span. diags Ry Age 61:149-50 JI 28 '16
 Suggested specifications for reinforced concrete floors. Concrete 9:24-5 JI '16
 Suggestions for impervious non-crazing floor surface. E. Y. Bragger. Concrete 9:10 JI '16
 Sweating of a concrete covered floor. E. McCullough. Bldg Age 38:56 N '16
 Thickness of flat slab floors. H: T. Eddy. Eng & Contr 46:88-90 JI 26 '16
 Ventilating a large Cincinnati theater. il diag Metal Work 85:467-8 Ap 7 '16
 Why did this concrete surface crack? Concrete 9:102-3 S '16
- Testing**
 Concrete floor test. Concrete 9:58 Ag '16
 Extensometer tests on three types of concrete floors. Eng N 75:992-3 My 25 '16
 Floor hardener stands test. R. R. Shively. Concrete Cem 7:219 D '15
 Load test of concrete floor cracked by settlement. J. H. Byrd. plan Eng N 76:11 JI 6 '16
 Load test on concrete joists; unexpected results. J. H. Byrd. diag Eng N 74:1134-5 D 9 '15
 Many unbiased flat-slab tests. A. R. Lord. Eng N 76:85 JI 13 '16
 Pittsburgh flat-slab ruling and the Seattle test. E: Godfrey; J: A. Ferguson. Eng N 75: 1244-5 Je 29 '16
 Results of tests on three types of reinforced-concrete building floors compared. D. E. Hooker. diags Eng Rec 73:762-3 Je 10 '16

Floors—Testing—Continued

- Seattle flat-slab floor test. C. A. P. Turner. Eng N 76:84-5 JI 13 '16
 Tests of reinforced concrete flat slab structures. A. N. Talbot and W. A. Slater. il diags III U Eng Exp Sta Bul 84:1-128 '16

Florence, Italy**Architecture**

- Dome of S. Maria del Fiore, Florence; a study of its structural system. R. F. Bach. il diags Brickb 25:209-15 Ag '16

Florida moss. See Spanish moss**Flotation process**

- Advent of flotation in the Clifton-Morenci district, Arizona. D. Cole. il diags Am Inst Min E Bul 117:1611-26 S '16; Abstract. Eng & Min J 102:112 O 11 '16
 Air meter for flotation work. il diag Met & Chem Eng 14:549 My 1 '16
 Apparatus used in flotation. H. A. Megraw. diags plan Eng & Min J 102:5-8 JI 1 '16
 Automatic oil and acid feeder. diags Eng & Min J 102:168 S 9 '16
 Braun flotation oil disk feeder. il Eng & Min J 102:876 N 11 '16
 Bunker Hill and Sullivan milling data. R. S. Handy. diags Eng & Min J 102:36 JI 1 '16
 Carrie Jane Everson and the flotation process. H. C. Parmelee. Met & Chem Eng 14:67-9 Ja 15 '16
 Chart for flotation testing. L. B. Pringle. Eng & Min J 102:749-50 O 21 '16
 Concentration and flotation of lead ores in southeast Missouri. Met & Chem Eng 15:33-5 JI 15 '16
 Devices used to regulate the flow of oil in the flotation process. diags Met & Chem Eng 15:620 D 1 '16
 Dielectric constants and flotation values of oils. C. Y. Clayton. Met & Chem Eng 15:504 N 1 '16
 Differential flotation. Eng & Min J 101:551 Mr 25 '16
 Experimental flotation machine. il Eng & Min J 101:691 Ap 15 '16
 Explanation of the flotation process. A. F. Taggart and F. E. Beach. il diags Am Inst Min E Bul 116:1373-86 Ag '16; Same. Met & Chem Eng 15:518-23 N 1 '16; Discussion. Am Inst Min E Bul 120:2332-3 D '16
 Extension of flotation. Met & Chem Eng 14:131 F 1 '16
 Flotation and cyanidation. E. A. Hersam. Met & Chem Eng 14:675-6 Je 15 '16
 Flotation and cyanidation. G. H. Clevenger. Met & Chem Eng 14:674-5 Je 15 '16
 Flotation and cyanidation; symposium. Met & Chem Eng 14:569-72 My 15 '16
 Flotation at Broken Hill, N. S. W. Eng & Min J 101:231 Ja 29 '16
 Flotation at Cripple Creek. Eng & Min J 100:964-5 D 11 '15
 Flotation at Globe-Miami, Ariz. Eng & Min J 100:1001-2 D 18 '15
 Flotation at Gold Hunter mill. il map flow sheet Eng & Min J 100:1044-6 D 25 '15
 Flotation at Mount Morgan, W. Shellshear. Eng & Min J 102:755-7 O 21 '16
 Flotation at Santa Gertrudis, W. Motherwell. Eng & Min J 102:718 O 14 '16
 Flotation bubbles. C. Y. Clayton. il Met & Chem Eng 15:278-9 S 15 '16
 Flotation concentration at Anaconda, Mont. F. Laist and A. E. Wiggin. il diags flow sheets Am Inst Min E Bul 111:549-81 Mr '16; Same cond. Eng & Min J 101:469-75 Mr 11 '16; Discussion. Am Inst Min E Bul 119:1889-96 N '16
 Flotation conference at the University of Kansas. Met & Chem Eng 14:179-80 F 15 '16
 Flotation-efficiency problem. G. Kempton. Eng & Min J 102:949 N 25 '16
 Flotation experiments on a Joplin tailing; with discussion. W. A. Whitaker and others. tables Met & Chem Eng 15:131-7 Ag 1 '16
 Flotation in Joplin district. L. L. Wittich. Eng & Min J 102:45-6 JI 1 '16
 Flotation in 1915. Met & Chem Eng 14:2-3 Ja 1 '16
 Flotation of flour gold. R. W. Smith. flow sheet Eng & Min J 102:25-7 JI 1 '16

- Flotation of minerals. R. J. Anderson. Am Inst Min E Bul 115:1119-36 JI '16; Same. Met & Chem Eng 15:82-7 JI 15 '16; Discussion. Am Inst Min E Bul 120:2234-5 D '16
 Flotation of oxidized ores; abstracts. O. C. Ralston and G. L. Allen. Met & Chem Eng 15:153-5 Ag 1 '16; Eng & Min J 102:169-70 JI 22 '16
 Flotation of silver-lead mineral at a New South Wales mine. H. H. Smith. il diag flow sheet Eng & Min J 100:953-7 D 11 '15
 Flotation oils. O. C. Ralston. Met & Chem Eng 14:712-14 Je 15 '16
 Flotation oils at Anaconda. Eng & Min J 101:508 Mr 18 '16
 Flotation replaces cyanide. R. W. Smith. flow sheet Eng & Min J 101:142-4 Ja 15 '16
 Flotation symposium; joint meeting of New York sections of A. I. M. E. and A. E. S., May 12. Met & Chem Eng 14:572 My 15 '16
 Flotation test tank for mill or laboratory. diags Met & Chem Eng 14:112 Ja 15 '16
 Flotation tests on an antimony gold ore. E. R. Pilgrim. Eng & Min J 102:820 N 4 '16
 Flotation versus cyanidation. J. A. Pearce. Met & Chem Eng 14:706-8 Je 15 '16
 Form for the classification of flotation data. W. A. Whitaker and G. Belchic. Met & Chem Eng 14:33 Ja 1 '16
 Froths formed by flotation oils. W. A. Mueller. il Eng & Min J 102:31-5 JI 1 '16
 History of the flotation process at Inspiration. R. Gahl. flow sheets diags plans Am Inst Min E Bul 117:1627-81 S '16; Same. Met & Chem Eng 15:393-405, 455-64 O 1-15 '16; Discussion. Am Inst Min E Bul 118:1870-5; 119:1879-88 O-N '16
 How flotation works. G. D. Van Arsdale. diags Eng & Min J 101:851-5 My 13 '16
 Hydrocarbons for flotation. Eng & Min J 101:636 Ap 8 '16
 Improvement in flotation by the agitation-froth process; abstract. F. Walsh. Met & Chem Eng 14:399 Ap 1 '16
 Inspiration consolidated copper company operations in August, 1916. Eng & Min J 102:679 O 7 '16
 Interfacial tension in flotation. H. J. Stander. Eng & Min J 101:576-7 Mr 25 '16
 Laboratory flotation machine. il Eng & Min J 100:970 D 11 '15
 Metallurgical disposal of flotation concentrates. R. J. Anderson. Met & Chem Eng 14:381-3 Ap 1 '16
 Metallurgical operations at the Braden copper co. R. E. Douglass and B. T. Colley. il Eng & Min J 101:315-21 F 12 '16; Abstract. Met & Chem Eng 14:279 Mr 1 '16
 Mine and mill plant of the Inspiration consolidated copper co. H. K. Burch. flow sheet il diags plan Am Inst Min E Bul 117:1468-9, 1482-1500 S '16; Same. Eng & Min J 102:411-15, 457-60 S 2-9 '16
 Miscellaneous wood oils for flotation. R. C. Palmer, G. L. Allen and O. C. Ralston. Am Inst Min E Bul 116:1387-96 Ag '16; Same cond. Eng & Min J 102:311-13 Ag 12 '16; Abstract. Met & Chem Eng 15:488-9 O 15 '16
 New flotation oil; sage brush oil. M. Adams. Am Inst Min E Bul 117:1683-4 S '16; Discussion. 119:1897-9 N '16
 New ideas about flotation. diag Eng & Min J 101:22-3 Ja 1 '16
 New source of flotative agents. G. H. Clevenger. il Am Inst Min E Bul 117:1685-92 S '16; Same. Eng & Min J 102:420-4 S 2 '16; Discussion. Am Inst Min E Bul 119:1897-9 N '16
 Notes on flotation. J. M. Callow. diags flow sheets Am Inst Min E Bul 108:2321-39 D '15; Same cond. Eng & Min J 100:919-23 D 4 '15; Excerpt. Met & Chem Eng 14:49-51 Ja 1 '16; Discussion. Am Inst Min E Bul 113:881-5 My '16
 Notes on flotation. R. C. Canby. Eng & Min J 102:29-30 JI 1 '16
 Oils and other reagents in flotation. R. J. Anderson. Met & Chem Eng 14:135-7 F 1 '16; Same. Sci Am S 81:379 Je 10 '16
 Ore flotation. W. D. Bancroft. Met & Chem Eng 14:631-5 Je 1 '16; Same. Sci Am S 82:110-12 Ag 12 '16

Flotation process—Continued

- Pine oil for flotation. C. F. Sherwood. Eng & Min J 101:21-2 Ja 1 '16
- Pine oil for flotation purposes; abstract. T. R. Jones. Met & Chem Eng 15:538 N 15 '16
- Preferential flotation of galena and blende. Met & Chem Eng 14:279 Mr 1 '16
- Progress of flotation in 1915. H. A. Megraw. Eng & Min J 101:97-9 Ja 8 '16
- Recent developments in zinc concentration practice in the Joplin district, Missouri. H. C. Parmelee. Met & Chem Eng 15:321 S 15 '16
- Recent progress in flotation. R. J. Anderson. J Fr Inst 181:643-57 My '16
- Report of the papers and discussions on flotation at the Ottawa meeting of the Canadian mining institute. Met & Chem Eng 14:323-8 Mr 15 '16
- Rowand's flotation machine. diag Eng & Min J 101:597 Ap 1 '16
- Sizing flotation concentrates. C. Y. Clayton. Eng & Min J 102:867-8 N 11 '16
- Stone's flotation apparatus. diags Eng & Min J 100:1011 D 18 '15
- Testing blankets for callow flotation cells. Eng & Min J 101:562 Mr 25 '16
- Universal flotation theory. C. T. Durell. Met & Chem Eng 14:251-6 Mr 1 '16
- Use of flotation oils. C. Y. Clayton and C. E. Peterson. Eng & Min J 102:825 N 4 '16
- Use of oils in flotation. H. A. Megraw. Eng & Min J 102:50-6 J 1 '16
- Use of porous bottoms in flotation cells. Eng & Min J 102:790 O 28 '16
- Validator flotation test plant. flow sheet Met & Chem Eng 15:372-3 O 1 '16
- Wood flotation machine. diags Eng & Min J 101:175 Ja 22 '16

Bibliography

- Bibliography of recent literature on flotation. September, 1916. D. A. Lyon, O. C. Ralson, F. B. Laney and R. S. Lewis. U S Bur Mines 12p (Typew)
- List of references on concentrating ores by flotation. J. Cunningham. il Mo U Bul 8:1-104 Ja '16; Excerpt. Am Inst Min E Bul 115:1131-6 J 1 '16

Patents

- Carrie Jane Billings Everson; biographical sketch with reprint of flotation patent. Eng & Min J 101:129-32 Ja 15 '16
- Everson flotation patents. Met & Chem Eng 14:13-14 Ja 1 '16
- Hyde flotation suit. Met & Chem Eng 15:555-7 N 15 '16
- Interesting points in the U. S. District court flotation decision. A. Schwarz. Met & Chem Eng 15:553-4 N 15 '16
- Wilmington decision of Judge Bradford in Miami flotation suit. Met & Chem Eng 15:441-8 O 15 '16

Flour

- Chemical constitution of the proteins of wheat flour and its relation to baking strength. M. J. Blish. J Ind & Eng Chem 8:138-44 F '16
- Flour milling problems. H. Snyder. J Ind & Eng Chem 8:334-40 O '16
- Method for the determination of the strength and baking qualities of wheat flour. C. H. Bailey. diag J Ind & Eng Chem 8:53-7 Ja '16

Flow meters. See Meters**Flow of air. See Air flow****Flow of gas. See Gas flow****Flow of oil. See Oil flow****Flow of water. See Water flow****Flowers**

- Curious garden trick explained. il Sci Am 115:59+ J 15 '16

Flowers, Protection of

- Conservation of American wild flowers. R. W. Shufeldt. il Am For 22:654-8 N '16

Floy, Henry, 1866-1916

- Sketch. por Eng N 75:919 My 11 '16

Flue dust

- Determination of dust losses at the Copper Queen reduction works, Douglas, Ariz. J. M. Samuel. diags plan Am Inst Min E Bul 114:

- 1079-98 Je '16; Excerpts. Eng & Min J 101:1061-3 Je 17 '16; Abstract. Met & Chem Eng 15:155-6 Ag 1 '16; Discussion. Am Inst Min E Bul 120:2148-51 D '16
- Diagram of a method of treating flue-dust from roasting or blast furnaces. Met & Chem Eng 15:158 Ag 1 '16
- Sintering plant installed at Toledo. H. V. Schiefer. il diags Iron Tr R 58:1154-61 My 25 '16

See also Blast furnace gas; Blast furnaces; Flue gas; Sintering; Smelting

Flue gas

- Cinder removal from flue gases of power plants. C. B. Grady. il diags Am Soc Heat & V E 21:232-43 '15; Excerpts. Eng M 48:505-7 Mr '15; Discussion. Am Soc Heat & V E 21:243-5 '15
- Instruments for recording carbon dioxide in flue gases. J. F. Barkley and S. B. Plagg. bibliog il diags U S Bur Mines Bul 911:51 '16

See also Blast furnace gas; Flue dust

Analysis

- Determination of sulfur dioxide and sulfur trioxide in flue gases. R. J. Nestell and E. Anderson. il J Ind & Eng Chem 8:258-60 Mr 16 '16
- Dwight boiler furnace kit. il Power 43:9-10 Ja 4 '16
- More steam from less coal. F. D. Harger. il Eng M 52:45-53 O '16
- Sampling and analyzing flue gases. H: Kreislinger and F. K. Ovitiz. il diags U S Bur Mines Bul 97:1-64 '15; Excerpts (Use of the Orsat). Power 43:336-9 Mr 7 '16

Flues

- Blair reversing valves; installation at open-hearth furnaces of Brier Hill steel company. il diags Iron Age 97:472-3 F 24 '16
- Switch-type reversing device for regenerative furnaces. il diags Iron Tr R 58:438-9 F 24 '16

See also Chimneys

Fluids

- Impact tube for measurement of fluids. S. A. Moss. diags Am Soc M E J 38:869-76 N '16
- Turbulent flow in pipes and channels; abstract. L. V. King. Am Soc M E J 38:506-7 Je '16

See also Air flow; Gas flow; Gases; Hydraulics; Liquids; Meters; Solution (chemistry); Steam flow; Viscosity

Flumes

- Coal tar helps maintenance of metal flumes. F. D. Pyie. Eng Rec 74:622 N 18 '16
- Design charts for open flumes with catenary section. E. L. Robinson. Eng N 75:566-7 Mr 23 '16
- Flume at Braden. diag map Eng & Min J 102:823-4 N 4 '16
- Flume bridges break while large brick sewer is repaired. diags Eng Rec 73:124 Ja 22 '16
- Goose Lake valley irrigation system, Oregon. G. W. Rice. Eng N 76:809 O 26 '16
- Goose Lake valley irrigation system, Oregon. K. A. Heron. il diag map Eng N 76:503-4 S 14 '16
- Hydraulic principles of flume intakes and outlets. A. C. Norton. diags Eng N 76:541-2 S 21 '16
- Large metal flumes. il diags Eng N 76:127 J 1 20 '16
- Long straight steel flume. il diag Eng N 75:1021 Je 1 '16
- New measuring flume. plan Eng N 76:270-1 Ag 10 '16
- San Miguel river canyon flume—a monument of gold mining failure. W. F. Wilcox. il Sci Am 114:123 Ja 29 '16
- Self-cleaning flume screen. H. W. Keith. diags Eng N 75:852-3 My 4 '16
- Sioux Falls flume failure threatens water supply. il Eng Rec 73:507 Ap 15 '16
- \$600,000 Washington irrigation project, financed by landowners, completed in a year. J. C. Stevens. il diags map Eng Rec 74:640-3 N 25 '16
- Swiss automatic gates will guard Wissota dam. Eng Rec 73:137-8 Ja 29 '16

See also Irrigation canals

Fluorescence

Presence of benzene homologs in the high boiling distillates of petroleum. B: T. Brooks and I. W. Humphrey. *Am Chem Soc J* 38: 393-400 F '16

Fluorspar

History and present methods of fluorspar mining in Illinois. C. C. Luedeking. *J Ind & Eng Chem* 8:554 Je '16

Flux

Fluxes for oxy-acetylene welding. S. W. Miller. *il Mach* 21:786-9 Je '15; Same. *Sci Am S* 82:158-9 S 2 '16

Fluxes in the jewelry factory. C. M. Hoke. *il Metal Ind n s* 14:191-3 My '16

See also Solder and soldering

Flying boats

Progress of the seagoing flying boat. L. D'Orcy. *il Sci Am* 113:555+ D 25 '15

Trend of American aeronautics toward giant aircraft. *il Sci Am* 114:512 My 13 '16

Flying machines. *See* Aeronautics; Aeroplanes

Flying sensation; could it be realized? C. Dienstbach. *il Sci Am* 114:667+ Je 24 '16

Flywheel calculator

Hartford flywheel calculator. *il Locomotive* 30:235-8 O '15

Flywheel explosions

Flywheel bursts at Newport, Ky. *il Power* 44: 698 O 31 '16

Flywheel explosion at Cardiff, Wales. *il Locomotive* 30:201-2 J1 '15

Flywheel explosions, 1915. *Locomotive* 30:250-1 O '15

Flywheel wreck in ice plant at Carthage, Mo. W. J. Roth. *il Power* 43:115 Ja 25 '16

Prevention of fly-wheel explosions. *il Locomotive* 30:195-200, 228-35; 31:6-14, 35-46 J1 '15-Apr '16

Flywheels

Strength of flywheels. bibliog diags *Locomotive* 31:35-46 Ap '16

Fodder. *See* Feeding and feeding stuffs**Fog**

Radio-active substances in the air and atmospheric fog; a study of atmospheric conditions of importance to the aviator. *il Sci Am S* 81:37-8 Ja 15 '16

Fog prevention

Prevention of fog by a blanket of oil. *Sci Am* 114:61 Ja 8 '16

Fog signals

Feeling through the fog by wireless. R. G. Skerrett. *il Sci Am* 114:180-1 F 12 '16

United States lighthouse service. *Sci Am S* 82:367 D 2 '16

Wireless fog signal for marine use. A. Marple. *il Elec R & W Elec'n* 69:306 Ag 12 '16

Fokker monoplanes

German military aeroplanes; the Fokker type and its French prototype. *il diags Sci Am S* 82:164 S 9 '16

Folk-lore, Medical. *See* Medical folk-lore**Food**

Calorimeter as the interpreter of the life processes; a study of the fuel requirements of the human individual. G. Lusk. *Sci Am S* 81:171 Mr 11 '16

Economy in food; wartime measures that are interesting Europe. A. K. Chalmers. *Sci Am S* 80:408-10 D 25 '15

Food consumption of adolescent boys. *Sci Am S* 82:251 O 14 '16

Food economics; the limitation of the quantity of food to a sufficiency. H. Campbell. *Sci Am S* 81:310-11 My 13 '16

Food selection or rational and economical living. C. F. Langworthy. *Sci Am S* 81:210-11, 230-1 Ap 1-8 '16

Tropical ration list. R. C. Hardman. *Eng & Contr* 45:410 My 3 '16; Same. *Eng & Min J* 101:940 My 27 '16

See also Bakers and bakeries; Bark as food; Bread; Butter; Canned food; Flavoring extracts; Flour; Food adulteration and inspection; Food preservatives; Gelatin; Glucose; Horseflesh; Meat extracts; Milk; Nuts; Proteins; Vegetables; Vitamines

Analysis

Chemist in food control as relating to the enforcement of law. L. M. Tolman. *J Ind & Eng Chem* 8:926-8 O '16

Estimation of sugar in meat products, particularly extracts. W. B. Smith. *J Ind & Eng Chem* 8:1024-7 N '16

See also Butter—Analysis; Food adulteration and inspection; Milk—Analysis; Milk, Condensed

Food adulteration and inspection

Chemist in relation to food control; symposium. *J Ind & Eng Chem* 8:926-41 O '16

High character of the manufactured foods offered the public to-day. A. V. H. Mory. *J Ind & Eng Chem* 8:844 S '16

Inspection of canned foods. W. D. Bigelow. *J Ind & Eng Chem* 8:1005-9 N '16

Simple food tests. S. L. Bastin. *il Sci Am* 114: 97 Ja 22 '16

See also Oleomargarine

Food laws and legislation

Food control from a state viewpoint. D: Klein. *J Ind & Eng Chem* 8:928-30 O '16

Food preservation

Strange modes of food preservation. L. Lodian. *il Sci Am* 115:454 N 18 '16

Food preservatives

Inhibiting action of certain spices on the growth of microorganisms. F. M. Bachmann. *diag J Ind & Eng Chem* 8:620-3 J1 '16

Footings, Wall. *See* Wall footings**Forage plants**

See also Alfalfa; Feeding and feeding stuffs

Force, Centrifugal. *See* Centrifugal force**Force and energy**

Energy. D: B. Rushmore. *Gen Elec R* 19:420-30 Je '16

Force, velocity and energy in jets of water and steam. *il Power* 43:798 Je 6 '16

See also Centrifugal force; Dyamometer; Electromotive force; Free energy; Mechanics; Physics

Ford, Henry, 1863-

Foresight of Henry Ford. E. C. Shumard. *Sci Am* 113:557 D 25 '15

Ford motor company

Addition to Detroit plant sets new mark for rapid concrete construction. *il plan Eng Rec* 74:430-1 O 7 '16

Cement-gun at the factory of the Ford motor co., Detroit. *il Concrete* 9:155-6 N '16

533,921 Fords built in 1 year. *Automobile* 35: 212 Ag 10 '16

Ford agencies increase rapidly in every city. *Automobile* 35:300 Ag 24 '16

Ford gas-steam plant, Detroit. T: Wilson. *il Power* 44:706-10 N 21 '16

Hollow reinforced-concrete columns for Ford plant. *diags Eng Rec* 74:620-1 N 18 '16

How the Ford motor company takes inventory. *il Factory* 17:521-5 N '16

Largest boilers for Ford co. J: P. Badenhausen. *il diags Power* 44:474-7 O 3 '16

New Ford line-up. F. L. Faurete. *Eng M* 50: 540-5 Ja '16

World's largest direct-current station, Detroit. F. Allison. *il plan Elec W* 68:312-16 Ag 12 '16

Fords

Rock paved ford stream crossing. *diags Eng & Contr* 46:302 O 4 '16

Semi-floating highway bridge across Castaic creek. *il diag Eng Rec* 74:172 Ag 5 '16

Forecasts. *See* Weather forecasts**Foreign trade.** *See* Export trade**Foreign trade council, National.** *See* National foreign trade council**Foremen**

Better foremen—an economic gain. T: Brown. *Metal Ind n s* 14:117-18 Mr '16

Future of the section foreman. W. H. Edwards. *Ry Age* 60:131-2 Ja 21 '16

Importance of the roundhouse foreman. G. C. Christy. *Ry Mech Eng* 90:421-2 Ag '16

Relation of foremen to men. T. E. Freeman. *Ry Mech Eng* 90:533-4 O '16; Same cond. *Ry Age* 61:409-10 S 8 '16

Technical training of foremen. *Sci Am* 115:404 N 4 '16

Foremen—Continued

Technically trained foreman. A. Rogers. *il Sci Am* 114:577+ Je 3 '16

See also Mine foremen

Foremen's meetings

Getting more out of shop conferences. W: J. Keeley. *Factory* 17:68+ J1 '16

Getting more out of shop conferences; written out of the experience of twenty-five factory executives. *Factory* 17:490+, 556+, 704+ O-D '16

How I conduct foremen's meetings. P. A. Tonk. *Factory* 16:452-3 My '16

How I get more out of shop conferences. A. Kauffmann. *Factory* 16:632+ Je '16

Points in handling foremen's meetings. *Factory* 16:394+ Ap '16

Forest administration

Failure of Louisiana's forestry policy and its remedy. *Am For* 22:304-5 My '16

Forest conservation

Conservation at the Pan-American scientific congress. *Am For* 22:117-19 F '16

Conservation of our forests. T. N. Vail. *Am For* 22:547-9 S '16

Example in conservation work. *il Am For* 22:480-2 Ag '16

Forest conservation for states in the southern pine region. J. G. Peters. *U S Agric Bul* 364:1-13 '16

Our forests in time of war. *Am For* 22:341-4 Je '16

President Wilson speaks plainly on House bill 11,162. *Am For* 22:562 S '16

See also Deforestation; Forest reserves

Forest fires

California forest fire protection. G: R. Rhodes. *Am For* 22:409-10 J1 '16

Canada's deadly forest fires. R. Black. *il Am For* 22:521-4 S '16

Cause of the northern Ontario fire—and future prevention. C. Leavitt. *il Am For* 22:524-8 S '16

Fighting a forest fire. J. Brown. *il Am For* 22:593 O '16

Fighting the forest fire. *il Sci Am* 115:440 N 11 '16

Fire in the woods. B. Adams. *il Am For* 22:292-3 My '16

Mechanical fire-fighting equipment. G. G. Blyth. *il Am For* 22:171-2 Mr '16

1915 forest fire season. A. S. Peck. *il Am For* 22:225-7 Ap '16

Spotting fires in 29 miles of wood snowsheds. *il Eng N* 76:458-9 S 7 '16

Forest Hills Gardens, Long Island

Recent houses at Forest Hills Gardens. *il plans Brickb* 25:139-42, 149-50 Je '16

Forest insurance. See Insurance, Forest**Forest planting**

See also Tree planting

Forest products

Hunting for oil used in shoe-shining preparations. *Sci Am* 115:98 J1 29 '16

Our vanishing export trade in the products of American forests. *il Sci Am* 114:319+ Mr 25 '16

United States forest products laboratory. *il Ry Age* 61:689-91 O 20 '16

War-time uses of forest products. A. W. Schorger. *Am For* 22:614-16 O '16

Work done by the U. S. forest products laboratory. *Eng N* 75:976 My 25 '16

Year's work at the forest products laboratory. *Ry R* 58:700-2 My 20 '16

See also Gums and resins; Lumber; Pine oil; Rubber; Spruce gum; Timber; Turpentine; Wood; Wood flour; Wood oils; Wood pulp; Wood waste

Forest reserves

Appalachian forest purchases. J: W. Weeks. *Am For* 22:542 S '16

Appalachian purchase. *Am For* 22:611 O '16

Forests of Alaska. H: S. Graves. *il Am For* 22:24-37 Ja '16

Further appropriations needed. *maps Am For* 22:48-50 Ja '16

National forests. D. F. Houston. *il Am For* 22:153-7 Mr '16

Western public lands and national forests. H. H. Chapman. *Am For* 22:619-21 O '16

See also Forests and forestry; National parks

Forest service**United States**

U. S. forester's report says national forests conserve timber resources and water power. Sibley J 30:176-7 F '16

Year's work in forest service industrial investigations. *J Ind & Eng Chem* 8:456-7 My '16

Forestry, Landscape. See Landscape forestry**Forestry laws and legislation**

Flaw in Indiana's state forestry organization. *Am For* 22:495 Ag '16

Forestry schools and education

Georgia state forest school. *il Am For* 22:160 Mr '16

Lecturing in Chekiang. D. Y. Lin. *il Am For* 22:94-6 F '16

Forests, Municipal

County, city, town and school forests. J. W. Toumey. *Am For* 22:428-9 J1 '16

Town forests. *Am For* 22:689 N '16

Town forests and the Lincoln highway. H. A. Reynolds. *Am For* 22:174-5 Mr '16

Forests and forestry

Deserts due to deforestation. M. Wicks. *il Am For* 22:598-606 O '16

Forestry and the public health. H: R. Hopkins. *Am For* 22:417-18 J1 '16

See also Ash; Fir; Forest conservation; Forest reserves; Forestry schools and education; Lumbering; Pine; Sycamore; Timber; Tree felling; Tree planting; Trees; Willow; Wood; Woodlots

Exhibitions

Forest service exhibit. D. C. Ellis. *il Am For* 21:1110-13 D '15

Museums as aids to forestry. H. I. Smith. *Sci Am* S 81:297 My 6 '16

Mensuration

Measuring and marketing woodlot products. W. R. Mattoon and W: B. Barrows. *il diags U S Agric Farmers' Bul* 715:1-48 '16

Alaska

Forests of Alaska. H: S. Graves. *il Am For* 22:24-37 Ja '16

China

Lecturing in Chekiang. D. Y. Lin. *il Am For* 22:94-6 F '16

Magna charta of China's forestry work. J. Baillie. *il Am For* 22:263-72 My '16

Europe

Shot, shell and soldiers devastate forests. P. S. Ridsdale. *il Am For* 22:333-40 Je '16

Great Britain

War consuming Britain's forests. *il Am For* 22:594-7 O '16

Hawaiian Islands

Woods of Hawaii; notes on the most important varieties, and their economic value. V. McCaughey. *il Sci Am* S 81:184 Mr 18 '16

Louisiana

Failure of Louisiana's forestry policy and its remedy. *Am For* 22:304-5 My '16

New Hampshire

Profit in water-works forestry at Nashua, N. H. *il map Eng N* 76:472-4 S 7 '16

Pennsylvania

Operations on Pennsylvania forests. *Am For* 22:332 Je '16

Porto Rico

Forests of Porto Rico; past, present, and future, and their physical and economic environment. L: S. Murphy. *bibliog maps* 12 pls *U S Agric Bul* 354:1-99 '16

Texas

Texas' forestry opportunities. *Am For* 21:1106-7 D '15

Forests and forestry—Continued**United States**

Our forests in time of war. *Am For* 22:341-4
Je '16

See also Forest reserves; Forest service

Vermont

Private forestry undertaking. A. F. Hawes.
il *Am For* 22:281-2 My '16

Forge furnaces. *See* Furnaces, Metallurgical

Forge shops

British projectile factory. il (supp) plan *Engineer* 122:47-9 J1 21 '16; Same cond. *Iron Age* 98:300-1 Ag 10 '16

New features in forge shop design. il *Iron Age* 97:248-50 Ja 27 '16

Plant of pioneer drop forging works; Billings & Spencer co., Hartford. il map *Iron Age* 97:58-62 Ja 6 '16

Timken adds new forge shop. il *Automobile* 34:544-5 Mr 23 '16

See also Forging

Forging

American drop forge association 3d annual convention, Philadelphia, June 9-10. *Iron Tr R* 58:1336-7 Je 15 '16

Drop forging. H. E. Gamble. *Ry Mech Eng* 90:465-6 S '16; Same. *Ry Age* 61:317-18 Ag 25 '16

Drop forging discussed at 3d annual meeting of the American drop forge association, Philadelphia. *Iron Age* 97:1446-51 Je 15 '16

Forge shop practice. V. T. Kropidowski. *diags Ry Mech Eng* 90:253-4 My '16

Forging high-explosive shells. D. T. Hamilton. il *diags Mach* 22:278-81 D '15

Heat treatment of drop forgings. W. C. Peterson. *Iron Tr R* 58:1382-3 Je 22 '16

Purely-hydraulic and steam-hydraulic forging of steel compared; abstracts. A. Myslin. *Am Soc M E J* 38:758 S '16; *Iron Age* 98:635 S 21 '16

Special tools for the forge shop. G. W. Smith. *Ry Mech Eng* 90:475-7 S '16

See also Blacksmithing; Dies; Forge shops; Forging machinery; Welding

Forging machinery

Selection of forging machines. *Iron Tr R* 59:214 Ag 3 '16

Formamidines

Reactions of the formamidines; some pyrazolone derivatives. F. B. Dains, H. R. O'Brien and C. L. Johnson. *Am Chem Soc J* 38:1510-17 Ag '16

Reactions of the formamidines; some thiazole derivatives. F. B. Dains and A. E. Stephenson. *Am Chem Soc J* 38:1841-4 S '16

Formates

Studies in conductivity; further studies on the behavior of the alkali metal formates in (anhydrous) formic acid. H. L. Schlesinger and C. Coleman. *Am Chem Soc J* 38:271-80 F '16

Formic acid

Process of making formic acid; patent of M. Vaygouny. *diag Met & Chem Eng* 15:47 J1 1 '16

Studies in conductivity; further studies on the behavior of the alkali metal formates in (anhydrous) formic acid. H. L. Schlesinger and C. Coleman. *Am Chem Soc J* 38:271-80 F '16

Formolite

Formolite reaction of Nastukoff as applied to oil residuals and natural asphalts. C. Richardson. *J Ind & Eng Chem* 8:319-21 Ap '16

Formulas. *See* Engineering—Tables, calculations, etc.; Mathematics—Formulas

Forsyth dental infirmary

Boston's care of school children's teeth. il *Sci Am* 115:370-1 O 21 '16

Fort Dodge, Des Moines & Southern railroad

Building up a big power load on an electric railway. il map *Elec Ry J* 48:344-7 Ag 26 '16

Fort Wayne, Indiana**Bridges**

Construction features of a reinforced concrete bridge at Ft. Wayne. C. B. Freeman. il *diags Concrete* 9:77-81 S '16

Railroads

Track elevation and station at Fort Wayne, Ind. il *diags plan Eng N* 75:492-5 Mr 16 '16

Fortification

Field fortifications, sieges and demolitions. T: M. Robins. *diags plan Eng & Min J* 101:514-20 Mr 18 '16; Abstract. *Eng Rec* 73:335-6 Mr 4 '16

Fortification; with discussion. H. B. Sauerman. *diags W Soc E J* 21:426-71 My '16

Fortifications of the future. *Sci Am* 114:464 My 6 '16

Future of forts. H. Berthaut. *Engineer* 122:409-10 N 10 '16

See also Intrenchments

Foundation soils

How the Transcona elevator settled and tipped. P. B. Gaffney. *Eng N* 74:1189 D 16 '15

Load tests of foundation soil in the Philippines. *Eng N* 75:232 F 3 '16

Sand foundations for high buildings. *Bldg Age* 38:32 Ja '16

Tests of soil and methods of underpinning buildings adjoining subway construction on William street, New York. J: E. Greathead. *diags Eng & Contr* 44:477-81 D 22 '15

Foundations

Bagged concrete foundation for bulkhead wall, New York city, after ten years' service. *Ry R* 59:658 N 11 '16

Brick walls under mill building replaced in sections at Seneca Falls, N. Y. H. L. Drake. *Eng Rec* 74:241 Ag 19 '16

Building Albany sewage pump house and grit chamber. S. B. Vernon. il *diags plan Eng N* 76:738-40 O 19 '16

Building foundations 150 feet under Scranton armory. il *plan Eng N* 76:681-4 O 12 '16

Building power house and dam on sand foundation at Prairie du Sac, Wis. il *diags plan Eng N* 75:1113-16 Je 15 '16

Cantilevers carry building columns above tunnel; foundations of Gazette-telegraph building, Pittsburgh. *diags Eng Rec* 74:322 S 9 '16

Combine waterworks intake and pumping station for Standard oil refinery. *diag Eng Rec* 74:230-2 Ag 19 '16

Comparative designs of office buildings. F. Ruchti. *diags W Soc E J* 21:640-9 O '16

Concrete and timber cribs accurately placed for Vancouver wharf. R. M. Frupp. il *diags Eng Rec* 74:111-12 J1 22 '16

Constructing pile foundation in hard gravel. S. O. Steere. il *diags Eng N* 76:338-9 Ag 24 '16

Construction features of the substructure for the Ocean steamship co.'s terminal at Savannah, Ga. il *Eng & Contr* 45:11-12 Ja 5 '16

Construction methods of a concrete foundation specialist. il *Concrete* 9:113-14 O '16

Cost of placing 53 concrete foundations for electric light standards. H. R. Ferris. *diag Eng & Contr* 46:294 O 4 '16

Cylinder pier foundations laid inside sheet-pile wells. C. S. Boardman. il *diag plan Eng N* 76:289-93 Ag 17 '16

Cylinder-pier foundations of the Lincoln memorial. J. A. O'Connor. il *diags Eng N* 75:558-61 Mr 23 '16

Derrick boats used inside coffer without extra digging. il *Eng Rec* 74:271 Ag 26 '16

Design and construction of the foundation for the Union national bank building, Cleveland, O. *plan Eng & Contr* 45:389-90 Ap 26 '16

Design and construction of the foundations for the Lincoln memorial, Washington, D. C. *diags Eng & Contr* 45:354-6 Ap 12 '16

Difficult chimney foundation tested after completion. il *diag Eng N* 75:1138-9 Je 15 '16

Drainage-pump foundation design is dam problem. H. L. Hutson. *diags plan Eng N* 76:838-9 N 2 '16

Economic design of pile foundations. C: E. Anderson. *diag Eng & Contr* 46:285-7 S 27 '16

Failure and righting of a million-bushel grain elevator, North Transcona, Can. A. Allaire. il *diags Eng & Contr* 45:66-8, 110-13 Ja 19, F 2 '16

Foundations for industrial buildings; with discussion. C: T. Main. *Am Soc M E J* 38:135-9 F '16

Large reinforced-concrete mat building-foundation. *Eng N* 75:1095 Je 8 '16

Foundations—Continued

- Large volume of concrete handled in small batches at Halifax ocean terminals. il diags plan Eng Rec 73:143-6 Ja 29 '16
- Largest bridge caissons rived by timber crib sunk in free air in 34 days. il diags plan Eng Rec 71:88-100 Jl 22 '16
- Mountain-top foundations support huge telescope. il Eng Rec 73:892 Je 17 '16
- New columns and trusses to support added stories in Engineering societies building. diags Eng Rec 74:412-14 S 30 '16
- Pile-and-mat foundation for power house in marsh of Newark bay. il plans Eng N 74:1113-15 D 9 '15
- Placing a steel frame in an old wall-bearing building. il diags Eng N 76:778-9 O 26 '16
- Placing foundations for coke plant near New York. il Eng N 76:688-90 O 12 '16
- Power-station buildings; with discussion. J. N. Hatch. Power 43:492-4 Ap 4 '16
- Railway terminal built over large drainage channel at Buffalo, N. Y. C. C. Hurlbut. il diags Eng N 76:436-7 S 7 '16
- Re-leveling a gas holder. A. R. Schiller. il Am Gas Light J 104:179-81 Mr 20 '16; Same cond. Eng & Contr 45:465-6 My 24 '16
- Sand sluiced around Field museum columns, Chicago, holds them for more fill by conveyors. il diags Eng Rec 74:250-2 Ag 26 '16
- Saving canal walls built on old plank foundations. W. H. Sawyer. il diags Eng N 76:556-7 S 21 '16
- Six-post water-tower tank. diags Eng N 76:888-90 N 9 '16
- Steel girders and concrete struts for foundations, Bell Parkway building, Philadelphia. diags Eng Rec 74:259-60 Ag 26 '16
- Subway columns and girders designed to support future high office building. diags Eng Rec 74:113-14 Jl 22 '16
- Tower foundations for a transmission line between Niagara Falls and Toronto; abstracts. F. C. Connery. diags Elec W 66:136 Jl 17 '16; Eng & Contr 46:435-6 N 15 '16
- Two buildings carried over a railway tunnel. diags Eng N 75:1072-3 Je 8 '16
- Underpinning with hollow piles driven with point. G. L. Knight. il plan Eng N 76:982-5 N 23 '16
- See also* Bridges—Foundations and piers; Building; Caissons; Cellars; Cofferdams; Column footings; Concrete; Concrete piling; Cribs; Foundation soils; Grouting; Machinery—Foundations; Pavements—Foundations; Piers; Piles and pile driving; Shoring and underpinning; Walls

Founders

- How practical men can broaden themselves. R. R. Clarke. Foundry 44:236-40 Je '16
- Labor troubles at Pittsburgh and Bridgeport. E. Kneeland; E. K. Nicholson. Iron Age 98:1174-5 N 23 '16

Founders' association, National. *See* National founders' association

Founding. *See* Brass founding; Foundry practice; Iron founding; Molding machines

Foundries

- Big output on limited floor space; Cleveland plant of the Westinghouse electric & mfg. co. H. C. Estep. il diags plan Iron Tr R 58:695-705 Mr 30 '16; Same. Foundry 44:145-55 Ap '16
- Cast-iron pipe manufacture in the South. Y. A. Dyer. il Iron Age 98:1159-62 N 23 '16
- Continuous foundry for small castings; Westinghouse electric & mfg. co.'s Cleveland plant. il diags plan Iron Age 97:767-74 Mr 30 '16
- Converter and electric furnace in the manufacture of steel castings; Sivyver steel casting co., Milwaukee. il plan Iron Tr R 58:982-9 My 4 '16; Same. Foundry 44:194-201 My '16
- Converter steel foundry for diversified work. il plan Foundry 44:43-8 F '16; Same. Iron Tr R 58:807-12 Ap 13 '16
- Electric furnace installations in foundries; list of units of various types operated in the casting plants of the United States and Canada. Foundry 44:203-4 My '16
- First principles of shop planning. F. M. Perkins. il Iron Tr R 58:187-92+ Ja 20 '16

Foundries of the early American days. Foundry 44:9 Ja '16; Same cond. Iron Tr R 58:337 F 10 '16

Foundry design worth copying. il Factory 16:608+ Je '16

Foundry for marine engine castings. il Iron Age 97:593-5 Mr 9 '16

How to build your new foundry economically. E. L. Shaner. il diags Foundry 44:379-88 S '16

Machine molding in a jobbing steel foundry; Sivyver steel casting co. O. J. Abell. il plan Iron Age 97:1047-51, 1118-19 My 4 '16

Making castings for Great Lakes ships. il plan Foundry 44:178-80 My '16

Model malleable foundry; Moline malleable iron co., St. Charles, Ill. il Foundry 44:478-80 N '16

Molding the Packard, twin-six motor castings; general layout of the foundry. Foundry 44:4 Ja '16

Planning a foundry from its future operations. E. F. Lake. Foundry 44:215-17 Je '16

Standardized industrial buildings. W. J. Austin. diags Iron Age 97:426-8 F 17 '16

See also Brass foundries; Electricity in foundries; Foundry accounting; Foundry management; Foundry practice; Sand, Foundry

Equipment and supplies

- Application of cranes in the foundry. T. E. Austin. il Iron Age 97:1251-4 My 25 '16
- Core-oven mechanical draft installation. il diags Metal Work 84:763-4 D 17 '15
- Cranes for the machine shop and foundry. H. M. Lane. diags Iron Age 96:246-8 Jl 29 '15; Same. Eng & Contr 44:476-7 D 22 '15
- Electricity in the foundry. R. H. McLain. il Foundry 44:437-9 O '16
- 11th annual exhibition of foundry and shop equipment, Cleveland, Sept. 11-15. il Foundry 44:411-18 O '16; Iron Age 98:588-9 S 14 '16; Iron Tr R 59:528-34 S 14 '16; Metal Ind n s 14:415-19 O '16
- Foundry and machinery exhibition, Cleveland, 1916. Iron Age 98:521-8 S 7 '16
- How sand-blast is used in modern foundries. H. C. Estep. il Foundry 44:349-63 S '16
- Reinforced steel flasks. il Foundry 44:208 My '16
- Use of electricity in iron foundries. il Elec R & W Elec'n 69:56-8 Jl 8 '16
- What you will see at the big foundry show; list of exhibitors and what they will exhibit. Foundry 44:345-8+ S '16; Same. Iron Tr R 59:467-71 S 7 '16
- See also* Converters; Crucibles; Fire brick; Foundries—Safety devices; Foundry ladles; Foundry machinery; Molding machines; Riddles; Sand, Foundry

Floors

Concrete floors in foundries. W. M. Kinney; C. H. Fuller. Concrete Cem 7:213 D '15

Inspection

- How castings for automobiles are inspected. Foundry 44:49-51 F '16
- Inspection department in a foundry. C. B. Wilson. Iron Age 96:1478-80 D 23 '15

Laws and regulations

See Foundry laws

Lighting

Ample light as a factor of safety. Foundry 44:35 Ja '16

Safety devices and measures

- Helmets worn as a protection against dangerous dusts. il Sci Am 114:617 Je 10 '16
- National founders' association safety code for foundries. Iron Age 97:1016-17 Ap 27 '16; Same. Foundry 44:174-5 My '16
- Report of the committee on safety and sanitation, American foundrymen's association. Iron Tr R 59:635-7 S 28 '16; Same. Foundry 44:425-7 O '16; Abstract. Iron Age 98:710 S 28 '16
- Safety first around molten metal. R. R. Clarke. Foundry 44:156-8 Ap '16
- Safety first for the side-blow converter. F. West. il Foundry 44:92 Mr '16

Foundries—Continued**Statistics**

Changes in the foundry industry since 1914. maps Foundry 44:373-7 S '16

Ventilation

Foundry ventilation. il Metal Ind n s 13:493-500 D '15

How the sanitation of brass foundries is promoted by good ventilation. il Iron Tr R 59:374-7 Ag 24 '16

Sanitation of the brass foundry promoted by proper ventilation. il Foundry 44:97-100 Mr '16

Foundry accounting

Determination of foundry costs. C. H. Scovell. Iron Age 98:764-5 O 5 '16

Keeping systematic costs in a jobbing shop. J. S. Watts. Foundry 44:120-1 Mr '16

Two examples of foundry cost accounting. W. E. Freeland. Iron Age 98:493-8 S 7 '16

Uniform cost system; report of the cost committee of the American foundrymen's association. Iron Tr R 57:1277-9+ D 30 '15

See also Foundry records

Foundry fires

How to reduce your loss from foundry fires. F. H. Wentworth. Foundry 44:440-2 O '16;

Same. Iron Tr R 59:850-2 O 26 '16; Same cond. Iron Age 98:698-9 S 28 '16

What part of a foundry presents the greatest fire risk? Iron Tr R 59:693 O 5 '16

Foundry ladles

Small ladles and their linings. T. F. Kennedy. Foundry 44:135-6 Ap '16

Steel ladle bowl; patent. il Iron Tr R 59:776 O 19 '16

Foundry laws

National foundrymen's association safety code for foundries. Iron Age 97:1016-17 Ap 27 '16;

Same. Foundry 44:174-5 My '16

Ohio rules governing foundry operations. Foundry 44:90-2 Mr '16

Pennsylvania adopts foundry regulations. Iron Tr R 58:240-1+ Ja 27 '16; Same. Foundry 43:479-81 D '15; Same cond. Iron Age 96:955-6 O 21 '15

Report of the committee on safety and sanitation, American foundrymen's association. Iron Tr R 59:635-7 S 28 '16; Same. Foundry 44:425-7 O '16; Abstract. Iron Age 98:710 S 28 '16

Rules for sanitation in Ohio foundries. Metal Work 86:108-9 Jl 28 '16

Foundry machinery

Electric vibrators for foundry use. il Elec W 67:842 Ap 8 '16

Grinding and mixing sand. il Iron Age 97:843 Ap 6 '16

Improved machinery for foundries. il Iron Tr R 59:730-2 O 12 '16

Mumford pattern-drawing machine. il Foundry 44:80 F '16

New electric vibrator. il Foundry 44:392 S '16

Pangborn rotary sandblast machine. il Mach 22:348-9 D '15; Foundry 43:511 D '15; Iron Tr R 57:1177 D 16 '15

Recent improvements in foundry operations. T. D. West. il diags Foundry 43:483-9; 44:29-34 D '15-Ja '16

See also Casting machines; Molding machines

Exhibitions

11th annual exhibition of foundry and shop equipment, Cleveland, Sept. 11-15. il Foundry 44:411-18 O '16; Iron Age 98:588-9 S 14 '16; Iron Tr R 59:528-34 S 14 '16; Metal Ind n s 14:415-19 O '16

Foundry and machinery exhibition, Cleveland, 1916. Iron Age 98:521-8 S 7 '16

What you will see at the big foundry show; list of exhibitors and what they will exhibit. Foundry 44:345-8+ S '16; Same. Iron Tr R 59:467-71 S 7 '16

Foundry management

Big output on limited floor space; Cleveland plant of the Westinghouse electric & mfg. co. H. C. Estep. il diags plans Iron Tr R 58:695-705 Mr 30 '16; Same. Foundry 44:145-55 Ap '16

Engineering service plus machine building. O. J. Abell. il Iron Age 98:499-504, 520 S 7 '16

First principles of shop planning. F. M. Perkins. il Iron Tr R 55:187-92+ Ja 20 '16

Foundry equations expressed without numerals. R. R. Clarke. Foundry 44:263-6 Jl '16

How castings for automobiles are inspected. Foundry 44:49-51 F '16

How sharp buyers work the casting market. W. L. Churchill. Foundry 44:306-9 Ag '16;

Same. Iron Tr R 59:369-72 Ag 24 '16

Human factor in foundry production. L. D. Burlingame. il Iron Age 98:632-5 S 21 '16;

Same. Iron Tr R 59:592-4 S 21 '16; Same. Foundry 44:466-8 N '16

Organization of a modern foundry. W. F. Rockwell. Iron Age 97:823-4 Ap 6 '16

Perpetual inventory of rough castings. H. A. Russell. Foundry 43:481-2 D '15

Planning work ahead in the foundry. Iron Age 97:1247-50 My 25 '16

Price of castings; why maker and taker should discard buying by the pound only. H. M. Ramp. Iron Age 96:1525 D 30 '15

Production methods in gas engine plant. O. J. Abell. il Iron Age 98:530-3 S 7 '16

Reducing foundry costs by analysis. R. E. Kennedy. il Iron Tr R 59:517-22 S 14 '16;

Abstract. Iron Age 98:706-7 S 28 '16

Regulating the output of a brass manufacturing plant. P. W. Blair. Metal Ind n s 14:377 S '16

See also Foundries—Safety devices and measures; Foundry accounting; Foundry practice; Pattern storage

Foundry practice

Acid and basic steel for castings. E. F. Cone. Iron Age 98:682-3; Discussion. 674 S 21 '16

American foundrymen's association annual convention, Cleveland, Sept. 11-15. Iron Age 98:640-6, 673-6 S 21 '16; Iron Tr R 59:579-88 S 21 '16; Foundry 44:395-406 O '16

American institute of metals annual convention, Cleveland, Sept. 11-15. Iron Age 98:676-80 S 21 '16; Iron Tr R 59:588-91 S 21 '16;

Foundry 44:407-10 O '16

Casting car wheels by new method. il Iron Tr R 59:472-7 S 7 '16

Casting car wheels with manganese treads. il Foundry 44:456-60 N '16

Casting hubs onto wheels in a specialty shop. il Foundry 44:211-13 Je '16

Casting of metals in chill molds. J. Johnson. diags Metal Ind n s 14:253-5, 290-2 Je-Jl '16;

Same. Foundry 44:185-90 My '16; Abstract. Am Soc M E J 38:666-8 Ag '16; Abstract. Iron Age 98:391 Ag 24 '16

Centrifugal machine for casting pipe. il diags Iron Age 98:506-9 S 7 '16; Same. Metal Work 86:342-5 S 15 '16; Abstract. Am Soc M E J 38:831 O '16

Collapsible core bar for casting pipe. il Iron Age 97:601 Mr 9 '16

Continuous melting in a small foundry. G. S. Evans. il Iron Age 97:709-12 Mr 23 '16

Converter steel foundry for diversified work. il plan Foundry 44:43-8 F '16; Same. Iron Tr R 58:807-12 Ap 13 '16

Copper and nickel in ammunition. G. Lyon, jr. il Metal Ind n s 14:1-5 Ja '16

Coremaking expedient. M. E. Duggan. Foundry 44:180 My '16

Efficiency in production of automobile cylinders. il Foundry 44:253-62 Jl '16; Same. Iron Tr R 59:409-18 Ag 31 '16

Elements of casting copper-base metal on iron. R. R. Clarke. diags Foundry 44:368-71 S '16

Expeditious method of baking cores. il Iron Age 97:1127-9 Mv 11 '16

Fred S. Campbell's inter-changeable match-plates. il Foundry 44:322-5 Ag '16

Gas makes four-inch pipe possible. H. C. Estep. il Iron Tr R 59:1054-5 N 23 '16

Graphite molds for metals and alloys. Iron Tr R 59:80 Jl 13 '16

How crude oil is used for cupola melting. B. Stoughton. diags Foundry 44:303-4 Ag '16;

Excerpts. Iron Age 97:232 Ja 20 '16

How producer gas made four-inch pipe possible. H. C. Estep. il Foundry 44:246-7 Je '16

How sand-blast is used in modern foundries. H. C. Estep. il Foundry 44:349-63 S '16

How sheaves are molded in an English shop. J. Horner. diags Foundry 44:93-6 Mr '16

Foundry practice—Continued

- How to mold large centrifugal pump casings. il Foundry 43:477-8 D '15
- How to gate and head steel castings properly. R. D. West. il diags Foundry 44:419-24 O '16
- Intricate pump casting. il Foundry 44:34 Ja '16
- Jobbing foundry installs 2-ton furnace. il diags Iron Age 98:510-13 S 7 '16
- Judging non-ferrous metal pouring temperatures. R. R. Clarke. diag Foundry 44:71-5 F '16
- Labor saving in the foundry. R: Moldenke. il Eng M 51:40-57 Ap '16
- Lack of uniformity in steel castings. J. H. D. Eagan. Iron Age 96:1462-3 D 23 '15
- Machine-molding a grinding mill frame. G: Buchanan. il Foundry 44:51-2 F '16
- Machining and molding cast tunnel linings. L: J. Josten. il Iron Age 96:1279-82 D 2 '15
- Making bronze keyed bushings in cast iron chills. J. McGinnis. il diags Metal Ind n s 14:66-7 F '16
- Making car wheels at the Lenoir car works. G. S. Evans. Foundry 43:351-3, 428-31, 435-9; 44:19-23 S-N '15, Ja '16
- Making parts for sewing machines. H. C. Estep. il Iron Tr R 58:331-7 F 10 '16
- Making the pattern for a piston valve cylinder. D: Gordon. diags Foundry 44:267-72 Jl '16
- Manufacture of small electrical castings. H. C. Estep. il Foundry 44:83-7 Mr '16; Same. Iron Tr R 58:641-5 Mr 23 '16
- Modeling clay as an adjunct to the foundry. C. Vickers. il Foundry 44:68-70 F '16
- Modern foundry advance. R: Moldenke. Foundry 44:15-17 Ja '16
- Modern methods of cleaning castings. H. C. Estep. il Iron Age 98:881-3+ O 19 '16
- Molding a Diesel engine cylinder. J. S. Hornor. il diags Foundry 44:277-80 Jl '16
- Molding a large locomotive cylinder. B. R. Hall. il Foundry 44:311-15 Ag '16
- Molding crusher castings. il diags Iron Age 98:1054-5 N 9 '16
- Molding the 1917 eight-cylinder Cadillac motor. H. C. Estep. il Foundry 44:447-52 N '16
- Molding the Packard, twin-six motor castings. il diag plan Foundry 44:1-6 Ja '16
- Mounting patterns for molding machine work. E. I. Chase. diags Foundry 44:57-9 F '16
- Pattern plates for reducing operating costs. D. Dalrymple. il diags Foundry 44:10-15 Ja '16
- Permanent graphite molds for metals and alloys. Foundry 44:191 My '16
- Problems confronting British foundrymen. H. Sherburn. Foundry 44:7-9 Ja '16
- Producing large cast steel locomotive frames. il plan Foundry 44:295-301 Ag '16
- Production of die-pressed castings. E: K. Hammond. il diags Mach 22:363-70 Ja '16
- Recent improvements in foundry operations. T: D. West. il diags Foundry 43:483-9; 44:29-34 D '15-Ja '16
- Spelter impurity in slush castings. G. Rigg and H: C. Morse. il Foundry 43:494-500 D '15
- Steel castings for American battleships and merchantmen. E. F. Cone. il Iron Age 97:652-8 Mr 16 '16
- Suggested standards for pattern parts. diag Iron Age 98:759 O 5 '16
- Tapering of core prints. E: Grant. diags Foundry 44:183-4 My '16
- Tapering of core prints. F. J. Townsend. Foundry 44:28 Ja '16
- Use of borings in cupola operations. J. A. Murphy. Iron Age 98:700-1 S 28 '16; Same. Foundry 44:453-4 N '16; Discussion. Iron Age 98:701 S 28 '16; Same. Foundry 44:405 O '16
- Use of crude oil for cupola melting. B. Stoughton. Iron Age 97:232 Ja 20 '16
- Value of the practical experiment. R. R. Clarke. Metal Ind n s 14:197-9 My '16
- See also* Aluminum founding; Brass founding; Cast iron; Copper founding; Cupola furnaces; Die casting; Electric furnaces; Electricity in foundries; Foundries; Foundry machinery; Iron founding; Iron metallurgy; Manganese steel; Molding machines; Pattern making; Pickling (metals); Pig iron; Steel castings

Bibliography

List of references on the foundry industry and foundry practice. Library of congress 6p (Typew)

Study and teaching

Foundry college course; instruction to students at University of Nebraska. Iron Age 98:712 S 28 '16

Foundry records

Perpetual inventory of rough castings. H. A. Russell. Foundry 43:481-2 D '15

Foundry sand. *See* Sand, Foundry**Foundry sanitation**

Report of the committee on safety and sanitation, American foundrymen's association. Iron Tr R 59:635-6 S 28 '16; Same. Foundry 44:425-6 O '16; Abstract. Iron Age 98:710 S 28 '16

Sanitation and shop hygiene for the foundry. J. F. Alexander. Foundry 44:454-5 N '16

See also Foundries—Ventilation

Foundry standards

Suggested standards for pattern parts. diag Iron Age 98:759 O 5 '16

Foundry supplies. *See* Foundries—Equipment and supplies**Foundrymen.** *See* Founders**Foundrymen's association, American.** *See* American foundrymen's association**Fountains**

Electric fountain for Peoria park. il Elec R & W Elec'n 69:510 S 16 '16

Fountains, Drinking. *See* Drinking fountains**Foundryman machine**

Papermaking and its machinery. il Engineer 120:453, 458, 471-3, 499-501, 521 N 12-D 3 '15

Fractions, Continued

Continued fractions. Mach 22:989 Jl '16

Framing (building)

Battered framing. diags Bldg Age 38:48-50 O '16

Modern plank frame farm barn. W. E. Frud-den. il plans Bldg Age 38:33-8 F '16

See also Roofs

France

See also English channel

Army

Railroad supply cities feeding the firing line. W. S. Hiatt. il diag Ry Age 60:287-9 F 18 '16; Same. Sci Am S 82:68-9 Jl 29 '16

Commercial policy

United States united for trade in foreign lands. W. S. Hiatt. Ry Age 60:21-3 Ja 7 '16

Industries and resources

Bonuses to workmen in French shops. L. Revillon. Iron Age 98:1234-5 N 30 '16

French steel and engineering industries after the war. Engineer 121:171-2 F 25 '16

French steel industry in war time. J. G. Butler, jr. Iron Age 98:1008-9 N 2 '16

Metallurgical industries in France in 1915. Eng & Min J 102:297 Ag 12 '16

Textile reconstruction of France. A. Renouard. Textile World 51:4445, 4525, 4720 O 14-21, N 4 '16

Railroads

See Railroads—France

Francesca, Piero Della, 1420-1492

Frescos of Piero Della Francesca. R. Cowles. il Am Inst Arch J 4:270-4 Je '16

Franchises

See also Public utilities—Franchises; Street railroads—Franchises

Franklin institute

Annual reports. J Fr Inst 181:270-90 F '16

Franklin medal

Presentation of the Franklin medal. May 17, 1916. J Fr Inst 182:69-97 Jl '16; Same abr. Met & Chem Eng 15:61-4 Jl 15 '16

Fraternity houses

Psi upsilon and Phi delta theta fraternity houses, Amherst, Mass.; views and plans. Brickb 25:pl 74-7 My '16

Fraud

See also Competition, Unfair; Forgery

Free energy

Free energy of bromine compounds. G. N. Lewis and M. Randall. *Am Chem Soc J* 38: 2348-56 N '16

Free energy of hydrochloric acid in aqueous solution. J. H. Ellis. *diags Am Chem Soc J* 38:737-62 Ap '16

Free energy of some carbon compounds. G. N. Lewis and M. Randall. *Am Chem Soc J* 37: 458-70 Mr '15

Free harbors

New free harbor at Cadiz, Spain. *Am Ind* 16: 28 Ap '16

Freeboard. *See* Naval architecture**Freedom of the press.** *See* Liberty of the press**Freezing**

Effect of freezing on certain inorganic hydrogels. H. W. Foote and B. Saxton. *Am Chem Soc J* 38:588-609 Mr '16

See also Ice; Refrigeration and refrigerating machinery

Freight

See also Demurrage; Electric railroads—Freight; Railroads—Freight; Shipment of goods; Transportation

Freight, Perishable

Moore type refrigerator and heater car. *il diag Ry Age* 60:484-7 Mr 17 '16; *Ry Mech Eng* 90:208-10 Ap '16; *Ry R* 58:486-8 Ap 1 '16

Freight agents. *See* Railroads—Freight agents**Freight car service**

Abatement of the car-shortage danger. Queen & Crescent route. *Ry R* 59:291 Ag 26 '16

American railway association plans to relieve car shortage. *Ry Age* 60:395-6 Mr 3 '16

Analysis of the coal car situation. A. T. Shurick. *Coal Age* 10:543-5 S 30 '16

Car shortage. *Ry R* 59:648-51 N 11 '16

Car shortage hearing at Louisville. *Ry R* 59: 633-5 N 18 '16

Car shortage statistics. *Ry Age* 61:947-9 N 24 '16

Central and western association of car service officers. *Ry Age* 61:850 N 10 '16

Conclusion of the Louisville hearing. *Ry Age* 61:943 N 24 '16

Demurrage as a cure for congestion and car shortage. *Ry Age* 59:1078-9 D 10 '15

Economical use of team tracks. *Ry Age* 61:4, 315 Jl 7, Ag 25 '16

Freight congestion at the port of New York. H. T. Wade. *il Sci Am* 113:554-5+ D 25 '15

Handling of company materials; abstracts. G. O. Dayton; U. K. Hall. *Ry Age* 60:1097-9 My 19 '16; *Ry R* 58:711 My 20 '16

Hearing on freight congestion in the East. *Ry Age* 60:442-7 Mr 10 '16

Hearings on the car shortage situation. *Ry Age* 61:900-2 N 17 '16

How the car situation may be helped. *Ry R* 59:651-2 N 11 '16

I. C. C. inspectors investigate car shortage in Nebraska. *Ry Age* 61:743-4 O 27 '16

Record car shortage. *Ry Age* 61:678 O 20 '16; Excerpt. *Iron Age* 98:941 O 26 '16

Remedies for the car shortage. *Ry Age* 61:927-8 N 24 '16

Report of special committee on the car shortage. *Ry R* 59:738-9 N 25 '16

Summary of the report of the A. R. A. commission on car service. *Ry Age* 61:907-8 N 17 '16

Transportation officers' convention at Boston; home-route card endorsed. *Ry Age* 61:29-33 Jl 7 '16

Underlying facts about the car shortage. *Ry Age* 61:830-1 N 10 '16

Worst car shortage in history of railroads raises prices and makes deliveries difficult. *Eng Rec* 74:sup181-2 N 4 '16

See also Demurrage; Freight cars, Interchange of; Private car lines

Car load

Campaign to increase car loading on the Chicago & North Western. *Ry Age* 60:687-9 Mr 24 '16

Car loading on the International & Great Northern Ry. *Ry R* 58:501-2 Ap 8 '16

Heavier loading of cars. J. F. Townsend. *Ry R* 58:488-9 Ap 1 '16

Freight cars

Atchison, Topeka & Santa Fe steel end box cars. *il diags Ry Age* 60:57-9 Ja 14 '16; Same. *Ry Mech Eng* 90:23-6 Ja '16

Automobile cars for the Wheeling & Lake Erie R. R. *il Ry R* 58:919 Je 24 '16

Buffing stresses in box cars. R. N. Miller. *diags Ry Mech Eng* 90:409-11 Ag '16

Cars and locomotives ordered and built in 1915. *Ry Age* 59:1240-4 D 31 '15; *Ry R* 58:75-8 Ja 8 '16

Comparative summary of freight cars in service on railroads of the United States—1914 and 1915; 1900 and 1915; tabulation. *Ry Age* 61:457-8 S 15 '16

Composite freight car construction. H. C. Priebe. *Ry Mech Eng* 90:29 Ja '16

Concentrate and calcine cars at Miami smelter. *diags Eng & Min J* 101:563 Mr 25 '16

Deficiency of equipment in 1915. *Ry Age* 61: 221-2 Ag 11 '16

Empty and load freight brake equipment. W. V. Turner. *diags Ry Age* 60:843-5 Ap 14 '16; Same. *Ry Mech Eng* 90:355-7 Jl '16; Abstract. *Am Soc M E J* 38:430-1 My '16

Erie railroad 50-ton capacity hopper cars. *il diags plan Ry Age* 61:285-7 Ag 18 '16; Same. *Ry Mech Eng* 90:457-9 S '16

Freight car construction, maintenance and abuse. C. J. Wymer. *Ry R* 58:219-21 F 5 '16; Same cond. *Ry Mech Eng* 90:139-40 Mr '16

Freight equipment cars for the Russian government. *il Ry R* 57:720-1 D 4 '15

Hopper cars for the Reading. *il Ry Age* 61:194 Ag 4 '16

Hopper coal cars for India. *il diags Ry Mech Eng* 90:182-4 Ap '16

Manual slack adjuster. *diags Ry R* 59:948 N 19 '15; *Ry Age* (Mech ed) 89:644 D '15

Moore type refrigerator and heater car. *il diag Ry Age* 60:484-7 Mr 17 '16; *Ry Mech Eng* 90:208-10 Ap '16; *Ry R* 58:486-8 Ap 1 '16

Need of uniform equipment on freight cars. H. W. Bayliss. *Ry Mech Eng* 90:405-6 Ag '16

Northern Pacific express cars. *il diags Ry Mech Eng* 90:243-6 My '16

Ratio of stress to end load for freight car center sills. C. M. Faris. *Ry Mech Eng* 90: 127-8 Mr '16

Steel frame automobile cars. *il Ry Mech Eng* 90:401-2 Ag '16

Steel roof for box cars. *il diags Ry Mech Eng* 90:75 F '16

Steeper end slopes for hopper cars. F. S. Ingoldsby. *Ry Mech Eng* 90:459 S '16

Tool houses from old box cars. *diags Ry R* 59: 71-2 Jl 15 '16

Universal car door fasteners. *il diag Ry Age* 60:255-6 F 11 '16; Same. *Ry Mech Eng* 90:103 F '16

Universal grain door. *il diags Ry Age* 60:487-8 Mr 17 '16; Same. *Ry Mech Eng* 90:155-6 Mr '16

Well car of 70 tons capacity. *il diags Ry Age* 60:1537-8 Je 23 '16

What is the most economical freight car? *Ry Age* 60:1210; 61:314-15 Je 9, Ag 25 '16

See also Brake beams; Car trucks; Car wheels; Demurrage; Draft gears; Freight car service; Private car lines; Railroads—Terminals; Railroads—Yards; Refrigerator cars; Tank cars

Cost of maintenance

Upkeep of railway wagons. *Engineer* 120:623-4 D 31 '15

Repair

Car department problems. E. E. Griest. *Ry R* 59:321-4, 355-8 S 2-9 '16; Same cond. *Ry Mech Eng* 90:453-6 S '16; Same cond. *Ry Age* 61:406-7 S 8 '16

Freight car carpenter apprentices. *il Ry Mech Eng* 90:403-5 Ag '16

Freight car rehabilitation. Baltimore & Ohio R. R. *diags Ry R* 58:37-9 Ja 8 '16

Freight car utilization and M. C. B. rules. N. D. Ballantine. *Ry Age* 61:935-7 N 24 '16

Promoting the proper handling of equipment. E. E. Betts. *Ry R* 57:497-500 O 16 '15; Same cond. *Ry Age* (Mech ed) 89:629-30 D '15

Rehabilitation of freight car equipment. M. K. & T. R. R. *diags Ry R* 59:310-11 S 2 '16

Freight cars—Repair—Continued

- Rivet cutter for freight car repairs. H. M. Brown. *diags Ry Mech Eng* 90:419-20 Ag '16
 Special tools for steel car repairs; abstract of papers at American railway tool foremen's assn. 8th annual convention. *diags Ry Mech Eng* 90:472-4 S '16
 Special tools for the car department. E. E. Griest. *diags Ry Mech Eng* 90:452 S '16
 Systematic repairs to freight equipment. F. G. Lister. *Ry Mech Eng* 90:248 My '16
See also Freight cars—Cost of maintenance; Railroads—Shops

Freight cars, Interchange of

- Chief interchange car inspectors' and car foremen's association 18th annual convention. *Ry Age* 61:652-7 O 13 '16; *Ry Mech Eng* 90:571-80 N '16
 Distribution of empty cars. *Ry Age* 60:152 Ja 28 '16
 Foreign car repairs and billing. E. S. Way. *Ry Mech Eng* 90:185-9 Ap '16; Same. *Ry R* 58:780-5 Je 3 '16
 Promoting the proper handling of equipment. E. E. Betts. *Ry R* 57:497-500 O 16 '15; Same cond. *Ry Age* (Mech ed) 89:629-30 D '15

Freight cars, Pooling of

- Pooling of railway wagons. *Engineer* 121:307 Ap 14 '16
 Privately-owned railway wagon. *Engineer* 121:471 Je 9 '16

Freight cars, Steel

- Belt rail applied to Union Pacific all-steel automobile cars. *diags Ry Age* 61:707 O 20 '16; Same. *Ry Mech Eng* 90:513-14 O '16
 Building all-steel box cars. *il Iron Tr R* 58:287-90 F 3 '16
 Hopper car of 200,000 lb. capacity. *il diags Ry Age* 61:593-6 O 6 '16
 Lessons from experience with steel freight cars. M. F. Cox. *Ry Mech Eng* 90:26-7 Ja '16
 Life of a steel freight car. S. Lynn. *il Ry R* 58:92-4 Ja 15 '16; Same. *Ry Age* 60:10-11 Ja 7 '16; Same. *Ry Mech Eng* 90:29-30 Ja '16
 Ore cars for the Bethlehem-Chile iron mines co. *Ry R* 58:808-9 Je 10 '16
 Pressed steel manufacturing co.'s end door for automobile cars. *il Ry R* 58:614 Ap 29 '16
 Self-clearing triple hopper bottom Gondola cars for the Erie railroad. *il Ry R* 58:868-9 Je 17 '16
 Service of Norfolk & Western 90-ton cars; tabulation. *Ry Mech Eng* 90:194 Ap '16
 Seventy-ton gondola cars for the Pennsylvania railroad. *il diags Ry Mech Eng* 90:406-8 Ag '16
 Steel box cars on the Pennsylvania. *il Ry Mech Eng* 90:193-4 Ap '16
 Steel ore car for the Duluth, Missabe and Northern. *il Ry Age* 61:68 Jl 14 '16; *Ry Mech Eng* 90:354 Jl '16
 Suggestions for improvement in car design. C. E. Wood. *Ry Mech Eng* 90:347-8 Jl '16
 Tie cars for the Atchison Topeka & Santa Fe Ry. *il diags Ry R* 58:855-8 Je 17 '16

Freight claim association

- 25th annual session, Washington, May 17-19. *Ry Age* 61:26-8 Jl 7 '16

Freight claims. See Railroads—Claims; Steamboat lines—Claims**Freight congestion**

- Eastern freight accumulation conference. *Ry Age* 60:810-11 Ap 7 '16
 Freight congestion at the Atlantic Seaboard. *Ry Age* 59:1052-3 D 3 '15
 Freight congestion at the port of New York. H. T. Wade. *il Sci Am* 113:554-5+ D 25 '15
 Freight facilities in Manhattan. *Ry Age* 60:809-10 Ap 7 '16
 Hearing on freight congestion in the East. *Ry Age* 60:442-7 Mr 10 '16; *Ry R* 58:359-60 Mr 11 '16
 How Chicago business concerns co-operated on freight problems. H. C. Barlow. *Ry R* 59:162-3 Jl 29 '16
 Motor trucks at steamship terminals. H. C. Hutchins and H. W. Perry. *il Int Marine Eng* 21:441-6 O '16
 Tie-up as Gotham sees it. C. J. Stark. *il Iron Tr R* 58:757-8 Ap 6 '16
 Traffic's strangle-hold on business. E. L. Shaner. *il Iron Tr R* 58:751-6 Ap 6 '16

Who is to blame for the freight congestion? G. D. Dixon. *Ry R* 58:473-4 Ap 1 '16

See also Freight car service; Freight handling

Freight elevators. See Elevators**Freight handling**

- Ancient l.c.l. freight handling methods. W. L. Campbell. *Ry Age* 61:414 S 8 '16
 Barrel elevator loaded and unloaded automatically. *il diag Iron Age* 98:711 S 28 '16
 Continuous package elevators on Philadelphia piers. H. J. Edsall. *diag Eng N* 76:406-7 Ag 31 '16
 Cooperation between motor trucks and steamship lines in handling freight. H. L. Whittemore. *Int Marine Eng* 21:61-2 F '16
 Cost of lighterage across the Hudson river. W. J. Wilgus. *Eng & Contr* 46:331-2 O 13 '16
 Costly congestion at marine terminals. A. J. Marshall. *Int Marine Eng* 21:193-4 Ap '16
 Freight handling at marine terminals. A. J. Marshall. *Int Marine Eng* 21:225 My '16; Same (Are national express-freight companies needed?). *Eng Rec* 73:606 My 6 '16
 Freight handling through unoccupied terminal space. S. H. Libby. *il Int Marine Eng* 21:459-60 O '16
 Helping the electric stevedore. H. C. Yost. *il Int Marine Eng* 21:448-52 O '16
 How electricity is harnessed to terminal work. R. H. Rogers. *il Int Marine Eng* 21:464-7 O '16
 How to make cargo handling more efficient. H. M. Harding and J. A. Jackson. *Eng Rec* 72:693-4 D 4 '15
 Hunt trucks, tractors and trailers. G. K. Jenckes. *il Int Marine Eng* 21:460-1 O '16
 Inefficiency in handling imports. H. A. Spaulding. *il Int Marine Eng* 21:437 O '16
 L.c.l. freight handling methods at Silvis Transfer, Ill. *il Ry Age* 60:1218-19 Je 9 '16
 Measures for the improvement of l.c.l. service. C. A. Pennington and others. *Ry Age* 61:459-64 S 15 '16
 Motor trucks as the solution of the marine freight terminal problem. M. C. Horine. *il Int Marine Eng* 21:20-2 Ja '16
 Necessity for improved systems at railway terminals. A. J. Marshall. *Ry R* 58:483-5 Ap 1 '16
 One system of checking l. c. l. freight. W. F. Northrup. *Ry Age* 61:109-10 Jl 21 '16
 Portable machinery for package freight handling. R. H. Rogers. *il Gen Elec R* 19:534-40 Je '16
 Reducing cost of handling L. C. L. freight. W. H. Gatchell; W. F. Hebard; M. R. Sutherland. *Ry Age* 60:359-62 F 25 '16
 Reduction of over, short and damage claims. C. H. Brown and others. *Ry Age* 60:1543-7 Je 23 '16
 Rough handling of freight. *Ry R* 59:289-90 Ag 26 '16
 Scientific management applied at one station. W. J. Collins. *Ry Age* 61:240-2 Ag 11 '16
 Starting right in handling L. C. L. freight traffic. W. L. Burt and others. *Ry Age* 60:5-10 Ja 7 '16
 Status of cargo handling in American marine terminals. J. A. Jackson and R. H. Rogers. *Gen Elec R* 19:127-32 F '16; Same cond. *Int Marine Eng* 21:356-7 Ag '16
 Warehouse to raise freight within and without at Los Angeles. *Eng Rec* 73:318 Mr 4 '16
See also Coal handling; Freight houses; Hoisting machinery; Loading and unloading; Motor trucks in freight handling; Ore docks; Ore handling; Railroads—Terminals; Telferage; Terminals

Freight houses

- Analyzing the problem. M. R. Sutherland. *plan Ry Age* 60:361-2 F 25 '16
 How the Lewiston, Augusta & Waterville street railway is building up profitable freight traffic. F. E. Wood. *il diags plans map Elec Ry J* 47:486-90 Mr 11 '16
 Location of the freight house. D. A. Tomlinson. *Ry Age* 60:8-9 Ja 7 '16
 Steel runways for freight houses and transfer platforms. *diag Ry Age* 60:256 F 11 '16

See also Warehouses

Freight rates

See also Railroads—Rates

Freight ships

- Auxiliary motor ship City of Portland, K. Mc-Alpin. *il* Int Marine Eng 21:292-4 Je '16
- Bulk cargo steamer Chokyu Maru, T. Ryu. *plan* Int Marine Eng 21:59-60 F '16
- Cargo-handling equipment on Italian freight steamer. *il* Eng N 76:210 Ag 3 '16
- Clyde line steamers built on the lakes. *il* *diags* Int Marine Eng 21:320-7 Jl '16
- Gain of cargo capacity in motor ship of about 3,000 tons deadweight capacity. R. W. Crowley. *diag* Int Marine Eng 21:400-1 S '16
- Italian cargo steamer Milazzo which unloads cargo at minimum cost. *il* *diag* Sci Am 115:123 Ag 5 '16
- New Luckenbach freight steamers. *Int Marine Eng* 21:162 Mr '16
- New steamers for American flour trade, built by the Northumberland shipbuilding company, Ltd., Howdon-on-Tyne, F. C. Coleman. *il* Int Marine Eng 20:530-2 D '15
- Ocean freighters. E. H. Riggs. *Int Marine Eng* 21:229-31 My '16
- Self-trimming vessels. H. A. Everett. *diags* Int Marine Eng 21:35 Ja '16
- Self-unloading limestone-carrying freighter W. F. White; abstract. R. V. Sawhill. *Int Marine Eng* 20:570 D '15
- Use of conveying machinery for handling bulk freight on board ship. W. B. Greene. *il* *diags* Int Marine Eng 21:502-4 N '16

See also Barges; Coaling vessels; Refrigeration on shipboard; Tank ships

Freight stations. *See* Railroads—Stations**Freight terminals.** *See* Railroads—Terminals; Railroads—Yards; Terminals**Freight trains.** *See* Freight car service; Railroads—Trains**Freight yards.** *See* Railroads—Yards**Freighters.** *See* Freight ships**French Indo-China.** *See* Indo-China, French**Frescoes**

- Frescoes of Piero Della Francesca. R. Cowles. *il* Am Inst Arch J 4:270-4 Je '16

Fresh-air schools. *See* Open-air schools**Friars club.** *See* New York (city)—Clubs**Frick, James Swan**

- House for James Swan Frick. H. D. Smith. *il* plans Brickb 25:193-6, pl 126 Ag '16

Friction

- Bearing-size design constants. L. Illmer. *Power* 43:251-5, 280-2 F 22-29 '16
- Did an underestimate of a coefficient of friction cause the Quebec bridge disaster? *Eng & Contr* 46:354 O 25 '16
- Surface friction; experiments with steam and water in pipes; abstract. C. H. Lander. *Am Soc M E J* 38:505-6 Je '16
- What lesson does the second Quebec bridge disaster teach? *Eng & Contr* 46:269-70 S 27 '16

See also Lubrication and lubricants

Friction clutches. *See* Clutches**Fritz medal.** *See* John Fritz medal**Frogs**

- Frog as an entertainer in motion pictures. *il* Sci Am 114:471 My 6 '16

Frost

- Experiments to determine frost action on sand. C. A. Ferry. *Eng & Contr* 46:431 N 15 '16

Frost protection

- Temperature inversions in relation to frost; methods for anticipating critical periods and protecting crops. A. McAdie. *Sci Am S* 81:140-2 F 26 '16

Frosted fruit. *See* Fruit, Frosted**Fructose**

- Crystalline β -methyl fructoside and its tetracetate. C. S. Hudson and D. H. Brauns. *Am Chem Soc J* 38:1216-23 Je '16

Fructose pentacetate

- Second crystalline *d*-fructose pentacetate. C. S. Hudson and D. H. Brauns. *Am Chem Soc J* 37:2736-45 D '15

Fruit

See also Agriculture; Citrus fruits; Frost protection; Jelly; Nuts

Fruit, Frosted

- Composition of frozen oranges and lemons. H. D. Young. *J Ind & Eng Chem* 7:1033-41 D '15

Composition of sound and frozen lemons with special reference to the effect of slow thawing on frozen lemons. H. S. Bailey and C. F. Wilson. *J Ind & Eng Chem* 8:902-4 O '16

Fruit, Precooling of

- Pre-cooling California oranges to save millions of dollars annually. V. W. Killick. *il* Sci Am 115:387 O 28 '16

Fruit closets

- Details of a fruit closet. E. J. G. Phillips. *diags* Bldg Age 38:55-6 S '16

Fruit juices

- Utilization of cull Florida citrus fruits. F. A. McDermott. *J Ind & Eng Chem* 8:136-8 F '16; Same. *Sci Am S* 81:367-8 Je 3 '16

Fruit storage

- Fruit storage house for the farm. J. L. Shawver. *plans* Bldg Age 38:45-6 My '16

See also Fruit closets

Fruit waste

- Utilization of cherry waste products. F. Rabak. *il* Sci Am 114:573-4 Je 3 '16
- Utilization of cull Florida citrus fruits. F. A. McDermott. *J Ind & Eng Chem* 8:136-8 F '16; Same. *Sci Am S* 81:367-8 Je 3 '16

Fuel

- CO₂ available with fuels of varying hydrogen. V. J. Azbe. *Power* 43:543 Ap 18 '16
- Fuel from municipal waste. T. J. Lacy. *il* Munic Eng 51:165 O '16
- Fuels for steam boilers. W. Kent. *Power* 43:454-6 Mr 28 '16
- Gas versus coal. A. P. Lewis. *Power* 43:852-3 Je 13 '16

Heating value of fuels. U S Bur Stand Circ 55:55-67 '15; Excerpt. *Heat & Ven* 12:47 D '15

Our fuel reserves. *Am Gas Light J* 104:45 Ja 17 '16

Substitutes for coal in the Andes. B. L. Miller and J. T. Singewald, jr. *il* Coal Age 9:1040-3 Je 17 '16

Use of low-grade fuel in Europe. R. H. Fernald. *il* *diags* plan U S Bur Mines Tech Pa 123:1-35 '15; Excerpt. *Power* 43:126 Ja 25 '16

See also Automobile engines—Fuel; Blast furnace gas; Briquets; Coal; Coal, Pulverized; Coke; Firing; Furnaces; Gas, Natural; Gas and oil engines—Fuel; Gas as fuel; Gasoline; Heating; Kerosene; Lignite; Locomotives—Fuel; Naphthalene; Paper as fuel; Petroleum as fuel; Railroads—Fuel; Smoke; Waste paper; Wood as fuel

Cost

- Coal more economical than oil. J. Ross. *Power* 43:723 My 23 '16
- Cost of coal and oil as fuel. P. Barker. *chart* Power 43:765-7 My 30 '16; Same. *cond. Eng & Min J* 102:93-4 Jl 8 '16
- Effect of Diesel engines on fuel supply and cost. S. A. Hadley. *Eng & Contr* 45:170-1 F 15 '16
- Examples of boiler-room economies. O. Monnett. *Power* 44:146-7 Jl 25 '16
- Fuel oil versus coal. R. E. Newcomb. *Power* 44:282-4 Ag 22 '16
- Relative costs of coal and of oil fuels. F. C. Fearing. *Power* 42:826-7 D 14 '15; Same. *Eng & Min J* 101:555-6 Mr 25 '16
- Report of station operating committee of the National district heating association; oil as fuel. *Power* 44:30-2 Jl 4 '16

Testing

- Evaporation tests with different fuels. L. Leob. *Power* 44:364 S 5 '16

Fuel, Pulverized. *See* Coal, Pulverized**Fuel economizers**

- Economics of stoker, economizer and superheater. A. A. Potter and S. L. Simmering. *Elec W* 67:371-2 F 12 '16; Same. *Am Gas Light J* 104:235-6 Ap 10 '16
- Economizer equation. A. W. Smith. *diags* Sibley J 30:128-33 Ja '16
- Economizer performance. Sibley J 30:287-8 Je '16
- Economizer safety and repairs. S. H. Farnsworth. *il* Power 43:507-8 Ap 11 '16

Fuel economizers—Continued

- Economizers in modern high-pressure power plants. C. F. Hirschfeld. *Power* 42:867-8 D 21 '15
 Indirect-acting economizer. B. N. Broido. *diag* *Power* 44:307-8 Ag 29 '16
 Power-plant efficiency. V: J. Azbe. *Am Soc M E J* 38:960-1 D '16
 Reduced-pressure economizers. *Power* 43:595, 779; 44:359 Ap 25, My 30, S 5 '16
 Renewing economizer tubes. *il Power* 43:174-6, 369, 409-10 F 8, Mr 14-21 '16
 Replacing scrapers on renewed economizer tubes. L. C. Kramer. *Power* 43:921-2 Je 27 '16
 Saving effected by economizer. R. von Fabrice. *Power* 44:548-9 O 17 '16
 Status of the economizer. *Power* 43:445 Mr 28 '16

Fuel economy

- Cutting down the fuel bill. R. M. Chargers. *Coal Age* 9:328 F 19 '16
 Data and discussion on efficiency in public utility power plants. C. Brossmann. *il diags Eng & Contr* 45:162-5 F 16 '16
 Fuel-combustion improvers. *chart Coal Age* 8: 965-7 D 11 '15
 Fuel economy and the proper utilization of coal. W. A. Bone. *Sci Am S* 82:175-6 S 9 '16
 Fuel economy in Great Britain; abstract, with discussion. H. E. Armstrong. *Met & Chem Eng* 15:354-6 S 15 '16
 Heat transmission; an economical consideration of fuel economy and temperature regulation. *Sci Am S* 80:411 D 25 '15
 Locomotive fuel economy and boiler design. J. T. Anthony. *Ry Age* 61:695-700 O 20 '16; Same cond. *Ry R* 59:653-8 N 11 '16
 More steam from less coal. F. D. Harger. *il Eng M* 52:45-53 O '16
 Power-plant efficiency. V: J. Azbe. *Am Soc M E J* 38:958-64 D '16

See also Combustion, Surface; Dry blast process; Firing; Fuel economizers; Grates; Locomotives—Fuel

Fuel inspection

- Functions of a railroad fuel inspector. E. McAuliffe. *Ry Age* 60:1085-6 My 19 '16; Abstract. *Ry R* 58:723-4 My 20 '16

Fuel oil. See Petroleum as fuel**Fuller's earth**

- Use of fuller's earth. *Textile World* 51:2247+ My 6 '16

Fulling

- Does fulling weaken woolen and worsted fabrics. *Textile World* 51:2761+ Je 10 '16

Fulton, John, 1826-1916

- Sketch. *por Coal Age* 9:200 Ja 29 '16; *Iron Age* 97:325 F 3 '16

Fumes, Smelter. See Smelter fumes**Fumigation. See Hydrocyanic-acid gas****Functions, Exponential**

- Formulas for lines with uniform leak loads. A. E. Kennelly. *diags Elec R & W Elec'n* 48:1149-51 Je 24 '16

Fungi

- Fungus diseases of trees. R. B. Maxwell. *il Am For* 22:161-3 Mr '16
 How fast does a fungus grow? *il Sci Am* 115: 392 O 28 '16

See also Mildew

Funnels

- Pattern for a square sheet metal funnel. *diags Metal Work* 86:177-8 Ag 11 '16

Fur fabric

- New process for making fur fabric. *il diag Textile World* 51:3645 Ag 19 '16

See also Felt

Furfural

- Comparison of barbituric acid, thiobarbituric acid and malonylguanidine as quantitative precipitants for furfural. A. W. Dox and G. P. Plaisance. *Am Chem Soc J* 38:2156-64 O '16

Furka Pass railway

- Furka Pass railway. *Engineer* 121:334-5 Ap 21 '16

Furnace industry

- Creating a demand for furnaces. *Metal Work* 85:310 Mr 3 '16

Developing warm air furnace business. F. K.

- Chew. *Metal Work* 85:187 F 4 '16
 Furnace manufacturers meet in Cleveland. *Metal Work* 85:171-2 Ja 28 '16
 Merchandising the one register furnace. *Metal Work* 86:44 Jl 14 '16
 National warm air heating and ventilating association discusses furnace advertising. *Metal Work* 85:827-31 Je 16 '16
 Results of warm-air furnace committee's work. J. H. Hussie. *Metal Work* 86:146-7 Ag 4 '16
 Selling plans for combination shop keepers. *Metal Work* 85:133 Ja 21 '16

Furnace lining

- Chrome-iron ore as lining for reverberatory furnaces. E. Hall. *Eng & Min J* 101:267-8 F 5 '16
 Refractories. W. H. Kelley. *Am Gas Light J* 104:166-7 Mr 13 '16

Furnace pipe. See Furnaces, Hot air—Pipes and fittings**Furnaces**

- Chain screen door for furnaces manufactured by the E. J. Codd co. *il Iron Age* 98:709 S 28 '16
 Chain screen doors. H. H. Wiegand. *J Ind & Eng Chem* 8:836-7 S '16
 Chemistry of furnace efficiency and air supply. C. E. Lucke and E. D. Thurston, jr. *Sch Mines Q* 36:326-30 Jl '15
 Construction and operation of a single-tube cracking furnace for making gasoline. C. F. Bowie. *il 10 pls U S Bur Mines Tech Pa* 161: 1-15 '16; Abstract. *Am Gas Light J* 105:106-7 Ag 14 '16
 Construction of furnaces of the surface combustion type. N. Latta. *Am Gas Light J* 105: 177-9 S 18 '16
 Furnace for crude fiber incineration. J. M. Pickel. *J Ind & Eng Chem* 8:367 Ap '16
 High temperature insulation. P. A. Boeck. *diags Met & Chem Eng* 14:225-9 F 15 '16; Same. *J Ind & Eng Chem* 8:371-5 Ap '16; Same cond. *Iron Tr R* 58:1047-9 My 11 '16; Same cond. *Am Soc M E J* 38:637-40 Ag '16; Abstract. *Power* 43:306-7 F 29 '16
 New kind of gas furnace. *Sci Am S* 82:206 S 23 '16
 New plate and angle heating furnaces installed at the Cramp's shipbuilding plant, Philadelphia. *il Int Marine Eng* 21:422-3 S '16
 Panel testing furnace is of exceptional size. J. E. Latta. *Eng Rec* 73:323 Mr 4 '16
 Perfect heat insulation. C. Hering. *Met & Chem Eng* 14:298 Mr 15 '16
 Pulverized coal—its preparation and use in industrial furnaces. S. H. Harrison. *il diags plans Eng M* 50:742-53 F '16
 Wiegand chain screen door. *il Int Marine Eng* 20:233-4 My '15; *Power* 42:81 Jl 20 '15; *Eng & Min J* 100:972 D 11 '15

See also Blast furnaces; Boilers; Coke ovens; Cupola furnaces; Draft; Electric furnaces; Fire brick; Firing; Foundry practice; Fuel; Fuel economy; Kilns; Refractory materials

Furnaces, Boiler

- Arrangement for maintaining even combustion in down-draft boilers. C. A. Fuller. *diags Heat & Ven* 13:22-3 O '16
 Boiler-furnace dimensions. *Power* 42:809-10 D 7 '15
 Boiler settings for smokeless combustion. O. Monnett. *diags Am Soc M E J* 38:633-6 Ag '16
 Bolton movable bridge-wall. *il diag Power* 42: 854 D 21 '15
 Burning soft coal without smoke; also combustion of coals in general. F. T. Oakes. *il diag Heat & Ven* 13:17-19 O '16
 Details of heating and ventilating work. F. G. McCann. *diags Metal Work* 84:797+ D 24 '15
 Detrick suspended arch. *il diags Power* 43: 622-3 My 2 '16
 Development of the smokeless boiler. C. L. Collette. *il diags Heat & Ven* 13:13-16 O '16
 Draft in fire-tube boilers. S. H. Viall. *diags Power* 43:509-11 Ap 11 '16
 Elements of smokeless furnace design. O. Monnett. *diags Heat & Ven* 13:17-24 Ja '16
 Evaporation test with shavings. H. Kilday. *diag Power* 43:924 Je 27 '16
 Firebrick for boiler furnaces. *Am Gas Light J* 104:50 Ja 24 '16

Furnaces, Boiler—Continued

- Fuels for steam boilers. W: Kent. Power 43: 454-6 Mr 28 '16
- Furnace arch quickly renewed. R. L. Ellis. Power 44:170 Ag 1 '16
- Furnace used with hand-fired water-tube boilers in St. Louis to prevent smoke. diags Elec W 67:212-13 Ja 22 '16
- Furnace with adjustable grate area; abstract. Am Soc M E J 38:349 Ap '16
- Mixing air and furnace gases. S. H. Viall. diags Power 43:788-90 Je 6 '16
- New rear-arch construction. diags Power 43: 221-2 F 15 '16
- Oil-burning boiler furnace. diag Power 44:464, 630 S 26, O 31 '16
- Phelps single-grate smoke-consuming sectional boiler. il Heat & Ven 13:51 O '16
- Pierce down-draft boiler. il Heat & Ven 13:50 O '16
- Pulverized-fuel installation serving ten 250-h.p. O'Brien boilers. H. G. Barnhurst. Am Soc M E J 38:801 O '16
- Reducing maintenance cost in boiler furnaces. C: M. Crewe. diags Elec W 66:1433-4 D 25 '15; Same cond. Am Gas Light J 104:77 Ja 31 '16
- Rise of the smokeless boiler. Heat & Ven 13: 28-9 O '16
- Smith smokeless-furnace boiler. Heat & Ven 13:51-2 O '16
- Strength of boiler furnaces. J: Airey. diag Am Soc M E J 38:802-4 O '16
- Tests of hand-fired furnaces. S. H. Viall. diags Power 43:396-9 Mr 21 '16
- Turbine furnace. diags Engineer 122:30-2 JI 14 '16
- Use of powdered coal as a fuel. C: L. Heisler. il diag Am Soc M E J 38:999-1001 D '16
- Watkins furnace door. diags Power 44:382-3 S 12 '16
- See also* Boilers
- Furnaces, Cupola.** See Cupola furnaces
- Furnaces, Electric.** See Electric furnaces
- Furnaces, Hot air**
- Air supply of pipeless furnace. Metal Work 85: 855 Je 23 '16
- Building codes to insure good furnace service. Metal Work 85:256 F 18 '16
- Casing used to increase furnace efficiency. O. A. Keyser. diag Metal Work 84:805-6 D 24 '15
- Cottage at Harvey, Ill., heated by pipeless furnace. il plans Bldg Age 38:59-62 O '16
- Danger of the pipeless furnace. H. W. Sigrist. Metal Work 86:43 JI 14 '16
- Efficiency of furnace tops compared. F. D. Goddard. diags Metal Work 86:338 S 15 '16
- Even pressure air supply to furnaces. Metal Work 86:679 D 1 '16
- Excelsior down-draft furnace. il Metal Work 86:357 S 15 '16
- Fan furnace system in country school. il plans Metal Work 86:203-5 Ag 18 '16
- Furnace expert investigates pipeless furnace plants. Metal Work 86:281 S 1 '16
- Furnace gets worst of it in bulletin reprinted in Minneapolis tribune. Metal Work 86:74-5 JI 21 '16
- Furnace heating in Buffalo apartments. plans Metal Work 86:11-12 JI 7 '16
- Furnace heating systems safe. Metal Work 85:474 Ap 7 '16
- Heat distribution in warm-air furnace. J. R. Allen. diags Metal Work 85:150-2 Ja 28 '16; Abstract. Heat & Ven 13:39 F '16
- Hot air before the Rotary club. Metal Work 86:376-7 S 22 '16
- Imperial steel furnace. il Metal Work 85:208 F 4 '16
- Installation of pipeless warm air furnaces. Metal Work 86:433 O 6 '16
- Making a profit on warm-air furnace jobs. Metal Work 85:670-1 My 19 '16
- Manufacturing facilities provided for making Rudy furnaces. il plan Metal Work 85:762-4 Je 2 '16
- Merchandising the one-register furnace. il Metal Work 85:548-9 Ap 21 '16
- Pipeless warm air furnace defended. Metal Work 86:432-3 O 6 '16
- Regulating warm-air furnace draft. diag Metal Work 86:377 S 22 '16
- Residence heated eight years by wood furnace. plans Metal Work 85:185-6 F 4 '16
- School at Lacon, Ill., warmed by battery of furnaces. il plan Metal Work 86:238-9 Ag 25 '16
- Smoke abatement; a report on recent investigations made at Washington university. E. L. Ohle. il diags Assn Eng Soc J 55:139-49 N '15
- Sterling one register furnace. Metal Work 85: 77-8 Ja 7 '16
- Successful rearrangement of furnace. il Metal Work 85:383 Mr 17 '16
- Twin register vs. one register furnace. Metal Work 85:818 Je 16 '16
- Warm-air furnace to heat railroad station. plan Metal Work 85:73-4 Ja 7 '16
- Warm air furnaces heat manufacturing plant. il Metal Work 85:93-4 Ja 14 '16
- Pipes and fittings**
- Air supply causes furnace troubles. Metal Work 85:186 F 4 '16
- Applying heat unit to furnace design. R. W. Noland. plans Metal Work 85:843-4 Je 23 '16
- Automatic furnace heating for garages. il diag Metal Work 86:375 S 22 '16
- Comments on New England trunk line job. diag plan Metal Work 85:777-8 Je 9 '16
- Designing furnace heating system. plans Metal Work 86:568-9 N 3 '16
- Determining pipe sizes for furnace heating. Metal Work 86:592-3 N 10 '16
- Division in air duct made furnace work. diags Metal Work 86:181 Ag 11 '16
- Fan-furnace system in manufacturing plant. il diag plan Metal Work 85:505-7 Ap 14 '16
- Furnace heating in Rochester house. Metal Work 85:318-19 Mr 3 '16
- Furnace heating system in Rochester house. H. L. Alt. il plans Metal Work 85:19-22 Ja 7 '16
- Furnace heating with natural gas fuel. R. S. Thompson. il diags plans Metal Work 85:273-6 F 25 '16
- Furnace system designed to suit building. plans Metal Work 86:431-2 O 6 '16
- Furnace system rearranged successfully. diags plans Metal Work 85:308-10 Mr 3 '16
- Furnaces heat houses built in blocks. J. Willmore. diag plan Metal Work 86:646-7 N 24 '16
- Garage heated by furnace on same level. plan Metal Work 85:254-5 F 18 '16
- Location of registers and furnaces. E. McCullough. Bldg Age 38:57-9 F '16
- Novel furnace system in private sanatorium. plans Metal Work 85:736-7 Je 2 '16
- Pipe sizes for warm-air furnace heating. M. W. Ehrlich. diag Metal Work 86:455-7, 521-2 O 13, 27 '16
- Rational methods applied to the design of warm air heating systems. R. E. Lynd. plans Am Soc Heat & V E 21:389-403 '15; Same. Metal Work 83:192-7 Ja 29 '15; Discussion. Am Soc Heat & V E 21:404-9 '15
- Register improvements recommended. H. D. Campbell. Metal Work 85:669 My 19 '16
- Restricted air passages reduce furnace capacity. diag Metal Work 86:183 Ag 11 '16
- Risers governed by studs not requirements. Metal Work 86:182-3 Ag 11 '16
- Theory and practice in warm-air heating. diags Metal Work 86:75-6 JI 21 '16
- Trunk line furnace job in southern home. diag plans Metal Work 85:699-700 My 26 '16
- Trunk line furnace system in New England. il plans Metal Work 85:401-3 Mr 24 '16
- Trunk main in furnace heating plants. plans Metal Work 86:307-8 S 8 '16
- Trunk main makes successful furnace job. plans Metal Work 86:549-50 N 3 '16
- Utilizing wind pressure in furnace heating. diag Metal Work 86:593-4 N 10 '16
- Variation installation in pipeless furnace. diags Metal Work 86:75-6 JI 21 '16
- Warm air furnace risers and fire protection. Metal Work 85:384 Mr 17 '16
- Warm-air furnace supersedes fireplace heater. il plans Metal Work 85:472-4 Ap 7 '16
- Warm air heating in a northern city; Morgan Park, Minn. il diag plans Metal Work 85: 606-9+ My 5 '16
- Warm-air heating system. plan Metal Work 85:287 F 25 '16

Furnaces, Hot air—Pipes and fittings—Cont.

Wood-burning furnace warms Michigan bank.
plans Metal Work 86:279-80 S 1 '16

Testing

Baltimore's method of testing hot air delivered by hot-air gas fired furnaces. H. M. Riley. il Am Gas Light J 105:273-6 O 30 '16
Methods of testing warm air furnaces. R. W. Davenport. diags Metal Work 86:104-5 JI 28 '16

Furnaces, Metallurgical

Ajax oil or gas forge. il Eng & Min J 101:729 Ap 22 '16
Aluminum melting furnace. il Engineer 120:462 N 12 '15
Annealing furnaces; latest gas and electric types. H. Zeitler. Sci Am S 81:283 Ap 29 '16
Artificial gas-fired furnace installation; Eddy-stone ammunition corporation. C. E. Richardson. il diag J Ind & Eng Chem 8:911-14 O '16
Blair reversing valves; installation at open-hearth furnaces of Brier Hill steel company. il diags Iron Age 97:472-3 F 24 '16
Blast vs. reverberatory furnace. B. Magnus. Eng & Min J 102:668-9 O 7 '16
Calcining furnace, patented invention of W. R. Clymer. diag Met & Chem Eng 15:103 JI 15 '16
Case low-pressure oil-burning forge. il Eng N 75:344 F 17 '16; Coal Age 9:501 Mr 18 '16
Changes in smelting practice of Anaconda copper mining co. F. Laist. il Eng & Min J 102:635-8 O 7 '16
Checker designs for open-hearth furnaces. Sibley J 30:178-9 F '16
Chrome-iron ore as lining for reverberatory furnaces. E. Hall. Eng & Min J 101:267-8 F 5 '16
Coal-dust firing in reverberatory furnaces. C. R. Kuzell. diags Eng & Min J 101:302-6 F 12 '16
Desulphurizing furnace patented by Lewis B. Skinner. diag Met & Chem Eng 14:282-3 Mr 1 '16
Features of the new copper smelting plants in Arizona. A. G. McGregor. il diags plan Am Inst Min E Bul 116:1257-79 Ag '16; Same. Met & Chem Eng 15:329-37 S 15 '16; Excerpt (Miami reverberatory furnaces). Eng & Min J 102:385 Ag 26 '16
Furnaces and temperatures. H. D. Coleman. Metal Ind n s 14:15-16 Ja '16
Gas-fired reverberatory furnace at Sulitjelma, Norway. C. Offerhaus. il diags Eng & Min J 100:1033-7 D 25 '15
Golden Reward roaster. C. G. Willard. Eng & Min J 102:306 Ag 12 '16
Heat economizing furnaces. il Am Gas Light J 103:381 D 13 '15
Heat-treating plant using surface combustion. il diags Met & Chem Eng 15:363-4 S 15 '16
Hislop crucible furnaces. il diag Metal Ind n s 14:176 Ap '16
How to heat wire rod by continuous coil method. R. V. Sawhill. il Iron Tr R 57:1082-6 D 2 '15
Landers mercury furnace. diag Eng & Min J 102:634 O 7 '16; Met & Chem Eng 15:657 D 1 '16
Large reheating furnace at Bates expanded steel truss co., East Chicago. il diag Iron Tr R 58:929 Ap 27 '16
Large surface combustion installation for the Edystone munitions corporation. il diag Gas Age 38:433-4 O 16 '16
Largest manufactured-gas-fired furnaces, in operation, show decided economy over fuel-oil-fired installations. il Am Gas Light J 105:113-15 Ag 21 '16
Leyner oil furnace with preheating feature. il Eng & Contr 45:109-10 F 2 '16
Manufacture of admiralty gun metal in England. H. S. Primrose. diags Metal Ind n s 14:248-9 Je '16
Metals and gas. il Metal Ind n s 14:325-9 Ag '16
Modern ideas in heat treatment. il diag Iron Tr R 59:1047-9 N 23 '16
Modified assay furnace. diag Met & Chem Eng 15:660 D 1 '16
Oil-burning blacksmith forge. F. G. Lister. diags Ry Age (Mech ed) 89:633-4 D '15

Oil-burning preheating furnace. il Coal Age 9:677 Ap 15 '16
Oil reverberatory furnace. diags Metal Ind n s 14:177 Ap '16
Open-hearth furnace roof. il diags Iron Age 96:1284-5 D 2 '15
Operating a 25-ton air furnace at low cost. F. C. Rutz. Foundry 44:433 O '16; Same. Iron Age 98:581 S 14 '16
Powdered coal burning. plans Iron Age 98:134-6 JI 20 '16
Preheating steel in Leyner oil-burning furnace. il Eng & Min J 101:1035 Je 10 '16
Problems in burning powdered coal. A. S. Mann. il diags Gen Elec R 18:920-4, 959-65 S-O '15; Same. Iron Age 96:632-4 S 16 '15; Same cond. Iron Tr R 58:229-32 Ja 27 '16
Recent progress in the metallurgy of copper. H. O. Hofman. J Fr Inst 181:83-97 Ja '16
Regenerative furnace of open-hearth steel practice patented by J. E. Bell. diag Met & Chem Eng 14:281 Mr 1 '16
Regenerator for furnaces, patented by Frank Orth. diags Met & Chem Eng 14:340 Mr 15 '16
Remington arms company's gas-fired annealing furnaces for rifle parts handle 20-ton charges. il diags Am Gas Light J 105:209-10 O 2 '16; Same cond. Iron Age 98:636-7 S 21 '16; Excerpts. Am Soc M E J 38:932-3 N '16
Reverberatory smelting at Consolidated Arizona smelting company, Humboldt, Arizona. Met & Chem Eng 14:33-4 Ja 1 '16
Roasting of blends. M. V. Ma. de Lummen. Eng & Min J 102:741-2 O 21 '16
Roitsheim-Remy continuous zinc distillation process. M. Liebig. il Met & Chem Eng 14:625-9 Je 1 '16
Seasoning reverberatory furnaces. E. C. King. diags Eng & Min J 101:721 Ap 22 '16
Sheet annealing furnaces. il diags plan Iron Age 97:1390-1 Je 8 '16
Sintering or chloridizing furnace; patented by I. R. Margettes and E. R. Pembroke. diag Met & Chem Eng 15:103-4 JI 15 '16
Smelting at the Arizona copper co.'s works. F. N. Flynn. il Am Inst Min E Bul 117:1575-92 S '16; Same cond. Eng & Min J 102:638, 703-6 O 7-14 '16
Standardizing air furnace practice. A. L. Pollard. Foundry 43:412-13 O '15; Same. Iron Tr R 58:144-+ Ja 13 '16
Surface combustion shell heat-treating furnaces. il Mach 23:76-7 S '16
Switch-type reversing device for regenerative furnaces. il diags Iron Tr R 58:438-9 F 24 '16
2,000-ton leaching plant at Anaconda. F. Laist and H. W. Aldrich. il diags Am Inst Min E Bul 116:1285-9 Ag '16; Same cond. Eng & Min J 102:337-8 Ag 19 '16
Use of powdered coal in metallurgical processes; a discussion of the engineering principles involved. C. J. Gadd. diags J Fr Inst 182:323-52 S '16; Abstract. Iron Age 97:890-5 Ap 13 '16
Use of reinforced concrete in metallurgical work. Eng & Min J 102:592 S 30 '16
Valves for regenerative furnaces. J. A. Herrick. il Iron Tr R 59:84 JI 13 '16
Washed metal. H. D. Hibbard. il plan Am Inst Min E Bul 108:2387-94 D '15; Same. Iron Age 97:481-5 F 24 '16; Same. Iron Tr R 59:275-7 Ag 10 '16
Wedge roasting furnaces for lead matte and zinc ores. il Eng & Min J 102:625-6 O 7 '16
White metal melting furnace. diag Engineer 122:423-4 N 10 '16

See also Blast furnaces; Crucible furnaces; Crucibles; Cupola furnaces; Electric furnaces; Open hearth process; Smelting

Furnaces, Open hearth. See Open hearth process Furniture

Removing dents from furniture. il Sci Am 114:527 My 20 '16

See also Cabinet work; House decoration; Sewing cabinets

Finishing

See Wood finishing

Furniture, Metallic

Bending sheet metal for metal furniture. K. G. Selander. diags Mach 22:473-4 F '16

Fuses. See Blasting; Shells (projectiles)

Fuses, Electric. See Electric fuses

Fusible plugs

- Fusible crown sheet plug. diag Ry Mech Eng 90:427 Ag '16
 Fusible plug. Ry R 59:106-7 JI 22 '16
 Fusible plugs investigated by Bureau of standards. Eng N 75:351 F 24 '16
 Oxidation of fusible plugs. Power 43:226 F 15 '16

G**Gadolinite**

- Extraction of beryllium from gadolinite. C. James and G. A. Perley. Am Chem Soc J 38:875-7 Ap '16

Gadolinium sodium sulphate

- Investigation. D. W. Bissell and C. James. Am Chem Soc J 38:873-5 Ap '16

Gage cocks

- Thomas-Langley gage cock. L. F. Wilson. diag Ry R 58:341-2 Mr 4 '16; Ry Mech Eng 90:367-8 JI '16
 Yergens self grinding gage cock. C. W. Schane. diag Ry R 59:125 JI 22 '16

Gages

- Comparative tests of gages. Mach 22:897 Je '16
 Convenient inspection gages for hand drills. C. C. Phelps. diag Eng & Min J 101:939 My 27 '16
 Easily-made gage for cutting rubber accurately. G. H. McKelway. diags Elec Ry J 48:983 N 4 '16
 Electrical limit gage. D. Baker. diags Mach 23:56 S '16
 Ellison forced-draft gages. il Power 43:871 Je 20 '16
 Etching graduations on gages. C. Gotthardt. diags Mach 23:56-7 S '16
 Fixed caliper gages in manufacturing. Mach 22:745 My '16
 Gage measures rail wear on sharp curves. J. T. Bowser. diags Eng Rec 71:555 N 4 '16
 Gaging and inspection methods. D. T. Hamilton. il diags Mach 23:95-118 O '16
 Limit gage principles and practical applications; abstract. W. H. Booth. Am Soc M E J 38:503-4 Je '16
 Limit gage with ball contact points. diag Mach 22:390 Ja '16
 Limit gauges. R. T. Glazebrook. il Engineer 122:224-5, 240-2 S 8-15 '16
 Making gages for shrapnel shells. A. A. Dowd. il Iron Tr R 59:17-20 JI 6 '16
 Precision gear center gage. diags Mach 23:155 O '16
 Reading gage. il Iron Tr R 59:897 N 2 '16
 Surface gage attachment for pattern shop use. S. L. Cook. diag Foundry 44:18 Ja '16
 Xander electric test indicator for surface gage. il Sci Am 114:130 Ja 29 '16; Mach 22:530 F '16

See also Draft gages; Micrometers; Pipe gages; Pressure gages; Water gages; Wire gages

Gaging

- Electric device for measuring the heights of acid in tanks. M. M. Samuels. diags Elec W 67:1051-2 My 6 '16
 Gauging of storage tanks. K. B. Howell. J Ind & Eng Chem 8:286-7, 430-3 Mr, My '16
 Gauging of storage tanks. R. L. Ogden. J Ind & Eng Chem 8:58-9 Ja '16

Galactan

- Galactan of larix occidentalis. A. W. Schorger and D. F. Smith. J Ind & Eng Chem 8:494-9 Je '16

Galactose pentacetate

- Fourth crystalline pentacetate of galactose and some related compounds. C. S. Hudson and J. M. Johnson. Am Chem Soc J 38:1223-8 Je '16

Galalith

- Galalith—a German insulating material obtained from skimmed milk. Sci Am 115:409 N 4 '16
 Galalith for insulating wounded nerves. Sci Am S 82:21 JI 8 '16

Galleries, Art. See Art galleries

Gallium

- Recovery of gallium from spelter in the United States. W. F. Hillebrand and J. A. Scherrer. J Ind & Eng Chem 8:225 Mr '16; Excerpts. Eng & Min J 101:720 Ap 22 '16

Gally, Merritt

- Merritt Gally, printer-inventor. H: L. Bullen. por Inland Ptr 57:348-9 Je '16
 Merritt Gally, printer-inventor. J: Thomson. Inland Ptr 57:485-8 JI '16

Galvanizing

- Common sense in galvanizing. Metal Ind n s 14:301-2 JI '16
 Corrosion of galvanizing pots. Metal Ind n s 14:432 O '16
 Electrogalvanizing equipment. Elec R & W Elec'n 69:169 JI 22 '16
 Meaker galvanizing barrel. il Metal Ind n s 13:514 D '15
 Method of galvanizing pipe. Metal Work 85:500 Ap 14 '16
 Sherardizing; latest improvements in the practice. S. Trood. Metal Ind n s 13:502-4 D '15
 Sherardizing process. O. W. Storey. Met & Chem Eng 14:683-91 Je 15 '16; Abstract. Am Soc M E J 38:671 Ag '16
 See also Electroplating

Galvanometers

- Inexpensive galvanometer of high sensitivity. il Elec W 68:731 O 7 '16

Galveston, Texas**Hurricane, 1915**

- Galveston during the recent storm. G: Sealy. Sci Am 113:539 D 18 '15
 Galveston storm repairs. N. T. Blackburn. il Eng N 75:393-5 Mr 2 '16
 Protecting Galveston's sea-wall. il Sci Am 114:76 Ja 15 '16
 Recovering stranded ships after Galveston storm. E. D. Thompson. il Eng N 75:710-11 Ap 13 '16

Game birds. See Birds

Games. See Toys

Garages

- Biggest public garage in the world; Marksheffel garage, Colorado Springs. il Horseless Age 38:222-3+ O 1 '16
 Catering exclusively to business vehicles. il Horseless Age 37:340-1+ My 1 '16
 Cincinnati's latest garage established in the downtown business district. C. C. Myers. il plan Horseless Age 38:141-2 Ag 15 '16
 Construction of the garage. Bldg Age 38:41 F '16
 De luxe garage in Missouri; Bruening bros., Kansas City. il plans Horseless Age 37:170-2 F 15 '16
 Garage business—buildings, equipment, methods. P. M. Heldt. il diags plans Horseless Age 36:394-5, 422-4, 454-6, 492-3, 530-1; 37:76-8, 110-11, 152-3, 186-8, 234-5+, 266-7, 320-1+, 348-9+, 394-6, 432-3, 474-6, 38:50-1, 86-7, 120-1, 160-1+, 198+, 310-11+, 352-3 O 15 '15-16
 Garage for the private car. il diags plan Bldg Age 38:63-4 JI '16
 Garage in the nation's capital. S. S. Grogan. il Horseless Age 38:186-7 S 15 '16
 Garage where no space is lost. plan Horseless Age 37:supl7-18 Je 15 '16
 How the firm of Smith and Brown made money. C. D. Enfield. Horseless Age 36:535+ D 15 '15
 Hudson four-story garage in New York city. il plans Automobile 35:715-17 O 26 '16
 Modern automobile hostelry; Greenwich garage. N. Talcott. il Horseless Age 38:296-7+ N 1 '16
 Novel underground garage. Dayton. O. il plan Horseless Age 37:379-80 My 15 '16
 Painting—a garage opportunity. H. C. Bursley. Horseless Age 37:247+ Mr 15 '16
 Portable garage for subway construction work. il Elec Ry J 48:1070 N 18 '16
 Stable and garage of W. D. Straight, esq., Westbury, Long Island. N. Y.; views and plan. Brickb 25:107, pl 57-8 Ap '16
 Suburban garage where service spelled success. il Horseless Age 36:488-9 D 1 '15
 See also Automobile service stations

Garages—Continued**Accounting**

- Considering the labor charges. R. V. Ficker. Horseless Age 38:152-4 S 1 '16
 Efficiency in the garage. R. V. Ficker. Horseless Age 37:106-7, 150-1+, 199-200, 264-5 F 1-Mr 1, Ap 1 '16
 Garage bookkeeping made easy. R. V. Ficker. Horseless Age 38:520-1 J1 1 '16
 Keeping livery service records. R. V. Ficker. Horseless Age 38:190-1 S 15 '16
 Keeping the agency account. R. V. Ficker. Horseless Age 38:44-5 J1 15 '16
 Simplifying the garage records. R. V. Ficker. Horseless Age 37:391-3 My 15 '16

Advertising

- Reaching out for new business. T. M. R. von Kéler. il Horseless Age 38:289-90 O 15 '16
 How advertising paid one garage. Horseless Age 38:213+ S 15 '16

Doors

- Arrangement of sliding garage doors. E. J. G. Phillips. il diags Bldg Age 38:57-8 D '16 (to be cont)
 Curved track solves the garage door problem. il Concrete 8:277 Je '16
 Garage business—buildings, equipment, methods. P. M. Heldt. diags Horseless Age 37:152-3 F 15 '16
 Special hardware for garage doors. il Concrete 8:277-8 Je '16

Equipment

- Equipping the modern garage. il Horseless Age 37:214-31 Mr 15 '16
 Garage business—air pressure equipment. P. M. Heldt. il diag Horseless Age 38:50-1, 86-7 J1 15-Ag 1 '16
 Kitchen boilers as air storage reservoirs. Locomotive 31:48-51 Ap '16; Same. Metal Work 86:320-1 S 8 '16
 Puller for special jobs. D. Hampson. diag Horseless Age 37:267 Ap 1 '16

Heating and ventilation

- Automatic furnace heating for garages. il diag Metal Work 86:375 S 22 '16
 Beware of petromortis. C. D. Enfield. Horseless Age 37:123 F 1 '16
 Garage business—buildings, equipment, methods. P. M. Heldt. diags plan Horseless Age 37:186-8 Mr 1 '16
 Garage heated by furnace on same level. plan Metal Work 85:254-5 F 18 '16
 How to heat a garage from hot water heating plant in adjoining residence. diags Dom Eng 76:395-6 S 16 '16
 How to install a steam heating system in a garage. diag plan Dom Eng 77:9-10 O 7 '16
 Overhead hot water heating plant. il plan Metal Work 86:437-9 O 6 '16
 Steam heating installation in a public garage; low pressure. G. W. Loeber. diags Dom Eng 7:138-41 N 4 '16
 Ventilation of garages. C. W. Obert. diags Dom Eng 76:150-2 J1 29 '16; Same cond. Metal Work 86:527-9 O 27 '16

Laws and regulations

- Separator ordinance sustained. Automobile 34:1188 Je 29 '16

Lighting

- Garage business—buildings, equipment, methods. P. M. Heldt. diags plan Horseless Age 37:234-5+ Mr 15 '16

Garages, Concrete

- Suggestions for building private garages of concrete. il plans Concrete 8:243-7 Je '16

Garages, Electric

- Central station service building at Springfield, Mass. il Elec W 68:1091-2 D 2 '16

- Electric-vehicle practice of Stroh brewery, Detroit. il Elec R & W Elec'n 68:16-20 Ja 1 '16

- Electrical construction and equipment of a modern garage. il Elec R & W Elec'n 68:1034-6 Je 3 '16

- Measured garage service vs. flat rate. Elec W 68:915 N 4 '16

Garages, Municipal

- Systematized municipal garage of Oakland, Cal. E. Crinnion. il Horseless Age 37:258-60 Ap 1 '16

Garbage. See Refuse and refuse disposal**Garbage collection. See Refuse collection****Garden cities. See City planning****Gardening**

See also Agriculture; Frost protection

Gardens

- Architectural features of the garden. J: T. Fallon. il Brickb 25:119-22, 151-4 My-Je '16

Gardner, William A., 1859-1916

- Sketch. por Ry Age 60:1078-9 My 19 '16

Garlic

- Garlic juice in wound treatment. Sci Am S 81:259 Ap 22 '16

Garment cutting. See Tailoring**Garment workers**

- Peace-at-any-price policy in the garment trade. H: White. Am Ind 16:11 J1 '16
 Women's muslin-underwear industry. U S Bur For & Dom Com misc ser 29:143-51 '15

Garnets

- Garnet deposits on the Navajo reservation, Arizona and Utah. H. E. Gregory. map Econ Geol 11:223-30 Ap '16

Gary, Indiana

- Pictorial outline of the Gary school idea. il Am Ind 16:24-5 D '15

Gas

- By-products of the lumber industry. H. K. Benson. U S Bur For & Dom Com 110:60-3 '16

- Combustion of gas and flame temperature. F: Peiter. Iron Tr R 58:651 Mr 23 '16

- Effect of atmospheric pressure on the candle-power of various flames; with discussion. E. B. Rosa, E. C. Crittenden and A. H. Taylor. il diags Illum Eng Soc 10:843-67 no 9 '15

- Efficient use of gas in the home. W. H. Forbes. Sci Am S 82:109 Ag 12 '16

- Gas for emergency use; equipment of the Bell telephone company's Parkway building, Philadelphia. H. T. Owens. il Am Gas Light J 104:273-4 My 1 '16

- Gas plant for country home. diag Metal Work 85:195 F 4 '16

- How producer gas made four-inch pipe possible. H. C. Estep. il Foundry 44:246-7 Je '16

- Instructions for gas company fitters. G: Wehrle. Gas Age 38:221-6, 291-5, 333-6, 406-9, 461-4, 523-6, 602-4 S 1-D 1 '16 (to be cont)

- Leaking gas which finds way into greenhouses extremely injurious to plants, but simple measures will prevent its entrance. G: E. Stone. Am Gas Light J 105:293-4 N 6 '16

- Peat gas. Am Gas Light J 104:86 F 7 '16

- Sewage gas tank utilized for light and heat. C: C. Hommon. il Eng Rec 73:182-3 F 5 '16

- See also Acetylene; Blast furnace gas; Coal-tar products; Coke-oven gas; Flue gas; Gas and oil engines; Gas as fuel; Gas cleaning; Gas lighting; Gas manufacture and works; Gas power plants; Gas producers; Gases; Mine gases; Oxyacetylene flame; Petroleum; Trees, Effect of gas on

Analysis

See Gas analysis

Cost

- House heating by gas; report. Am Gas Light J 104:83-6 F 7 '16

Ignition

- Pilot flame ignition of incandescent gas lamps. C. W. Jordan. diags Illum Eng Soc 10:670-9 no 8 '15

- See also Automobile engines—Ignition devices; Gas and oil engines—Ignition

Manufacture

See Gas manufacture and works

Rates

See Gas rates

Gas—Continued

Standards

- Adoption of proper heat unit standard improves strategic position gas holds in illuminating field. *Am Gas Light J* 105:335-6 N 20 '16
- Calorific standard tests are giving gas companies opportunity to study gas making characteristics from new angles. *Am Gas Light J* 105:252 O 16 '16
- Heat standard for gas. *Sci Am* 114:296 Mr 18 '16
- Heat unit standard adopted in upper New York state. *Am Gas Light J* 105:287-8 O 30 '16
- Massachusetts gas commission considers calorific standard. *Am Gas Light J* 105:27-8 Jl 10 '16
- Municipalities urged to help in tests for calorific standard. A. D. Adams. *Am Gas Light J* 105:173 S 11 '16
- Notes on gas standards. W. R. Addicks. *Met & Chem Eng* 15:639-41 D 1 '16
- Substitution of heating value for candle power as a standard for gas quality. R. S. McBride. *Am Gas Light J* 104:99-103+ F 14 '16
- Truth about candle power, heat units, high price of inferior gas oil and lower gas bills. *Am Gas Light J* 104:374-5 Je 12 '16

Gas, Blast furnace. See Blast furnace gas

Gas, Coke-oven. See Coke-oven gas

Gas, Compressed

Volume of compressed city gas for a tank. H. A. Everett. *Int Marine Eng* 21:168 Mr '16

Gas, Natural

- Composition of natural gas. J. Ashworth. *Coal Age* 10:146-7, 472 Jl 22, S 16 '16
- Compressibility of natural gas at high pressures. G. A. Burrell and I. W. Robertson. *diag U S Bur Mines Tech Pa* 131:1-10 '16
- Control of petroleum and natural gas wells. A. G. Heggem. *il diags Am Inst Min E Bul* 109:151-63 Ja '16; Excerpts. *Iron Age* 97:254 Ja 27 '16
- Deviation of natural gas from Boyle's law. R. F. Earhart and S. S. Wyer. *il diags Am Soc M E J* 38:695-9; Discussion. 700-8 S '16
- Diastrophic theory; study of the mechanics of oil and gas accumulation in commercial deposits. M. R. Daly. *diags Am Inst Min E Bul* 115:1137-57 Jl '16; Discussion. 120:2204-11 D '16
- Establishing a standard of measurement for natural gas in large quantities. F. P. Fisher. *il diags Am Soc M E J* 38:681-92 S '16; Same cond. *Iron Tr* 53:870-4 Ap 20 '16; Discussion. *Am Soc M E J* 38:692-4 S '16
- Extraction of gasoline from natural gas by absorption methods. G. A. Burrell, P. M. Biddison, and G. G. Oberfell. *diags Met & Chem Eng* 14:651-60 Je 1 '16
- Furnace heating with natural gas fuel. R. S. Thompson. *il diags plans Metal Work* 85:273-6 F 25 '16
- Gasoline from natural gas. *Sci Am* S 81:187 Mr 18 '16
- Gasoline from natural gas. B. N. Glick. *Automobile* 35:777-80, 896-7 N 2, 23 '16
- House heating by gas; with yearly operating costs in forty-seven buildings using natural gas. F. R. Hutchinson. *il Heat & Ven* 13:19-33 Mr '16
- How to obtain new natural gas business. H. O. Loebell. *Gas Age* 38:27-8 Jl 1 '16
- Natural gas breaks record. *Gas Age* 38:416 O 16 '16
- Natural gas—its occurrence and properties. D. Hager. *diags Eng & Min J* 100:959-61 D 11 '15
- Necessary use and effect of gas compressors on natural gas field operating conditions. S. S. Wyer. *il diags Am Inst Min E Bul* 110:281-97 F '16
- Ohio commission's investigation of natural gas shortage in Cleveland. C. V. Critchfield. *Am Gas Light J* 104:230-1 Ap 10 '16
- Oklahoma conserves state's natural gas. *Eng N* 75:149 Ja 27 '16
- Possibility of deep sand oil and gas in the Appalachian geo-syncline of West Virginia. D. B. Reger. *map Am Inst Min E Bul* 117:1709-24 S '16

Principles of natural-gas leasehold valuation. S. S. Wyer. *Am Inst Min E Bul* 112:747-60 Ap '16; Same cond. *Iron Tr* R 59:267-70 Ag 10 '16; Discussion. *Am Inst Min E Bul* 120:2228-30 D '16

Ratio of the specific heats and the coefficient of viscosity of natural gas from typical fields. R. F. Earhart. *Am Soc M E J* 38:888-90 N '16

Relation of the quality of oil to deformation. R. H. Johnson. *Econ Geol* 10:676-8 N '15

Thermal decomposition of the ethane-propane fraction from natural gas condensate. J. E. Zanetti and E. H. Leslie. *J Ind & Eng Chem* 8:777-9 S '16

Thermal decomposition of the propane-butane fraction from natural gas condensate. J. E. Zanetti. *diag J Ind & Eng Chem* 8:674-8 Ag '16

Underground wastes in oil and gas fields and methods of prevention. W. F. McMurray and J. O. Lewis. *il U S Bur Mines Tech Pa* 130:1-27 '16

Use of mud-laden fluid in oil and gas wells. J. O. Lewis and W. F. McMurray. *il diags U S Bur Mines Bul* 134:1-86 '16

Laws and regulations

Development of the law relating to the use of gas compressors in natural gas production. S. S. Wyer. *Am Inst Min E Bul* 110:263-79 F '16; Discussion. 113:946-52 My '16

Laws and regulations relating to operation of oil and gas lands in Oklahoma. J. O. Lewis and W. F. McMurray. *U S Bur Mines Bul* 134:67-79 '16

Gas, Oil

New York's gas oil business. *Am Gas Light J* 104:154 Mr 6 '16

Utilization of gas oil. R. C. Downing. *diags Am Gas Light J* 104:355-9, 371-4 Je 5-12 '16

Gas, Sewer. See Sewer gas

Gas, Water

Blue water-gas and deep-fuel combustion. A. G. Glasgow. *Am Gas Light J* 104:23, 26-7 Ja 10 '16

Decomposition of hydrocarbons and the influence of hydrogen in carbureted water gas manufacture. M. C. Whitaker and E. H. Leslie. *diag J Ind & Eng Chem* 8:593-601, 684-95 Jl-Ag '16

History of the development of water gas. O. B. Evans. *Am Gas Light J* 104:51-4, 67-9 Ja 24-31 '16

Hydraulic steam valve control of blasting units for water gas sets. R. E. Blair. *diags Am Gas Light J* 104:325 My 22 '16

Instruction for gas company fitters. G. Wehrle. *il diags Gas Age* 38:523-6 N 15 '16

Materials used in water gas manufacture. Massachusetts companies; tabulation. *Am Gas Light J* 105:231 O 9 '16

Measuring air and steam to water gas sets not patentable. *Am Gas Light J* 104:38 Ja 17 '16

Study in gas oils. R. C. Downing and E. F. Pohlman. *diags Am Gas Light J* 105:318-19, 322-30 N 13 '16

Gas analysis

Accurate method of gas analysis. O. A. Krone. *diags J Ind & Eng Chem* 8:231-7 Mr '16

Analysis of fuel gas. R. L. Hallett. *il Eng & Min J* 101:779-80 Ap 29 '16

Commercial sampling and analysis of producer gas. P. W. Swain. *il Am Soc M E J* 38:978-82 D '16

Determination of light oils in coal gas and description of still for separating the light oils from the absorbing oil. D. H. Duvall. *il diag Met & Chem Eng* 15:626-7 D 1 '16

Methods of analyzing exhaust gases. G. A. Burrell. *diags U S Bur Mines Bul* 74:72-4 '15

Reagents for use in gas analysis; chromous chloride. R. P. Anderson and J. Riffe. *J Ind & Eng Chem* 8:24-6 Ja '16

Reagents for use in gas analysis; phosphorus in solution. R. P. Anderson and W. Biederman. *J Ind & Eng Chem* 8:135-6 F '16

Reagents for use in gas analysis; the relative advantages of the use of sodium and potassium hydroxides in the preparation of alkaline pyrogallol. R. P. Anderson. *J Ind & Eng Chem* 8:999-1001 N '16

Gas analysis—Continued

- Reagents for use in gas analysis; the specific absorption of alkaline pyrogallol in various pipettes. R. P. Anderson. *diags J Ind & Eng Chem* 8:131-3 F '16
- Sampling and analyzing flue gases. H. Kreislinger and F. K. Ovit. *diags U S Bur Mines Bul* 97:21-34 '15; Same abr. (Use of the Orsat). *Power* 42:336-9 Mr 7 '16
- Simplification of gas analysis calculation. W. J. Walker. *J Ind & Eng Chem* 8:640-1 JI '16
- Standard methods of gas testing. *diags U S Bur Stand Circ* 48:126-53 '16
- Study in gas oils. R. C. Downing and E. F. Pohlman. *diags Am Gas Light J* 105:318-19, 322-30 N 13 '16
- Use of copper oxide for fractionation combustion of hydrogen and carbon monoxide in gas mixtures. G. A. Burrell and G. G. Oberfell. *diag J Ind & Eng Chem* 8:228-31 Mr '16

See also Flue gas—Analysis

Gas and electric association, Empire state. *See* Empire state gas and electric association

Gas and oil engines

- Benninghofen engine for small plants. *il Automobile* 34:721 Ap 20 '16
- Causes of gas-engine trouble. C. V. Hull. *Power* 42:903 D 28 '15
- Concerning the exponent m in the equation for the expansion line of internal combustion engines; abstract. Münzinger. *Am Soc M E J* 38:86-7 Ja '16
- Effect of water upon carbon. G. Warren. *Power* 44:488-9 O 3 '16; Same abr. *Sci Am S* 82:276 O 28 '16
- Efficiency. H. M. Hobart. *Gen Elec R* 19: 279-81 Ap '16
- Engineering water supply by gas engine driven pump. *il Eng & Contr* 46:33-4 JI 12 '16
- Flexibility in steam and gas engines. *Sci Am S* 82:117-18 Ag 19 '16
- 400 brake horse-power four-cylinder gas engine. *il diags (supp) Engineer* 122:140-1 Ag 18 '16
- Furnace gas engine design; abstract. H. Hubert. *Iron Age* 97:1499 Je 22 '16
- Gasoline-driven car ferry. *il Ry Age* 61:322-3 Ag 25 '16
- General Electric oil engines for United States government. A. D. Blake. *il diags Power* 43:718-22 My 23 '16
- Heat deteriorates cast iron. *Automobile* 35:406-7 S 7 '16
- Heat losses in the gas engine. A. H. Gibson and W. J. Walker. *Iron Age* 98:19 JI 6 '16
- Heavy-construction hot-bonnet oil engine. *il Elec W* 67:111 Ja 8 '16
- Heavy-oil engines. S. B. Daugherty. *diags Am Soc M E J* 38:783-7 O '16
- History of the American automobile industry. D. Beecroft. *diags Automobile* 34:238-9, 275-6, 327-8, 370-1, 405-6, 456-7, 507, 548-9+, 592-3+, 640-1, 679 F 3-Ap 13 '16
- Influence of compression in internal-combustion engines. R. E. Mathot. *Power* 43:512-14 Ap 11 '16
- Internal combustion engine cycles. A. B. Browne and H. Chase. *diags Sci Am S* 82:172-4, 186 S 9-16 '16
- Internal combustion engine in the oil field; abstract. F. G. Rappoport. *Am Soc M E J* 38:594 JI '16
- James Robson: the inventor of the two-cycle internal combustion engine. *Engineer* 120: 583-4 D 17 '15
- Kerosene engine of simple design. *il Automobile* 34:501 Mr 16 '16
- Low-compression De La Vergne type DH oil engine. *il Power* 43:214-15 F 5 '16
- Margin of power in internal combustion engines. R. E. Mathot. *Power* 43:877-8 Je 20 '16
- Marshall oil engine. *il Elec R & W Elec'n* 69: 386-7 Ag 26 '16
- Novel kerosene engine. *il Power* 44:164 Ag 1 '16
- Oil engine electric plant of the Crucible steel castings company, Lansdowne, Pa. J. M. Harding. *Iron Age* 97:254 Ja 27 '16
- Oil-engine operators. A. J. Fortner. *Power* 44: 451-2 S 26 '16
- Oil engine vaporizer proportions. L. Illmer. *diags Am Soc M E J* 38:37-41 Ja '16; Discussion. 38:151-2 F '16

- Oil engines. G. E. Windeler. *diags Engineer* 121:158-9 F 18 '16
- Oil engines. S. B. Daugherty. *Power* 43:458-9 Mr 28 '16
- Operation of low-compression type oil engines. L. H. Morrison. *Power* 44:618-20 O 31 '16
- Peculiar case of misfiring. E. Hurst. *diag Power* 42:869-70 D 21 '15
- Petter semi-Diesel engine. *il diags Engineer* 121:234-5 Mr 17 '16
- Possibilities of double expansion engine. J. L. Napier. *diags Automobile* 34:808-11 My 4 '16
- Power-plant losses at high altitudes. A. V. Clarke. *Power* 43:515-16 Ap 11 '16
- Sommerfeld gas-engine plant. W. O. Rogers. *il Power* 42:861-3 D 21 '15
- Standard fuel-oil engine. *il diags Power* 43: 655-6 My 9 '16
- Tessé rotary cylinder motor. *diags Am Soc M E J* 38:265-6 Mr '16
- Trying direct fuel spray. W. F. Bradley. *diags Automobile* 34:231-2 F 3 '16
- Two-crank, four-cylinder combustion engine; abstract. C. W. Shafer. *Am Soc M E J* 38: 833 O '16
- Two-stroke-cycle fuel-oil engine without compression in crankcase. *il diag Elec W* 67: 1489 Je 24 '16
- Two-stroke-cycle oil engines. *il Elec W* 67:1259 My 27 '16
- Use of oil engines for pumping. C. R. Knowles. *Am Water Works Assn J* 3:356-63 Je '16; Same (Cost and test data on pumping water with oil engines). *Eng & Contr* 45:217-18 Mr 1 '16
- Vertical vs. horizontal oil engines. H. R. Setz. *Am Soc M E J* 38:897-900 N '16
- See also* Aeroplane motors; Automobile engines; Carbureters; Cylinders (engines); Diesel engines; Gas producers; Gas turbines; Gasoline; Locomotives, Gas and oil; Motor barges; Motor boats; Motor cars (railroad); Tractors

Bibliography

- Books on automobiles and gas engines [20 titles]. *Mach* 22:692 Ap '16

Cooling

- Cooling gas-engine water in cyanide plant. C. Labbe. *diag Eng & Min J* 101:860 My 13 '16
- Cooling system for Diesel-engine circulating water. A. V. Youens. *il Power* 43:77-8 Ja 18 '16
- Cylinder cooling of internal combustion engines. F. W. Lanchester. *J Fr Inst* 181:300-1 F '16
- Novel cooler for internal combustion engines. *il Sci Am S* 82:165 S 9 '16

See also Automobile engines—Cooling

Exhaust

- Composition of the exhaust from liquid fuel engines. R. W. Fenning. *Engineer* 121:251-2 Mr 24 '16; Abstract. *Am Soc M E J* 38:427-8 My '16
- Exhaust-box cover. D. L. Fagnan. *diag Power* 44:317 Ag 29 '16
- Gasoline and oil engine exhausts. *Sci Am S* 82:155 S 2 '16
- Gasoline mine locomotives in relation to safety and health. O. P. Hood and R. H. Kudlich. *bibliog il diags U S Bur Mines Bul* 74:1-78 '15; Excerpt (CO gas). *Automobile* 34: 313 F 17 '16
- Gasoline motors in mines. *Coal Age* 9:471; 10: 551-3 Mr 11, S 30 '16
- Neutralizing the discharge from oil engines. *Coal Age* 9:511 Mr 18 '16
- Utilization of exhaust heat from internal combustion engines; abstract. W. Gentsch. *diags Am Soc M E J* 38:180-1 F '16

See also Automobile engines—Exhaust

Fuel

- Burning kerosene successfully. E. W. Roberts. *Sci Am S* 81:373 Je 10 '16
- Carburetion with different grades of fuel. E. N. Percy. *Power* 44:560-2 O 17 '16
- Fuels for internal combustion engines; committee report. *Ry Age* 61:745-6 O 27 '16
- Fuels for the oil engines. J. F. Wentworth. *Power* 43:850 Je 13 '16
- Gas engines for collieries. A. T. Cocking. *Coal Age* 9:876 My 20 '16

Gas and oil engines—Fuel—Continued

- Kerosene vaporizer easy problem. C. E. Lucke. Automobile 34:559-60 Mr 23 '16
 Naphthalene for combustion engines. diag Gas Age 38:426-8 O 16 '16
 Naphthalene motor fuel. K. Bruhn. Am Gas Light J 104:91-2 F 7 '16
 Tests with gasoline-kerosene mixtures. Power 44:410 S 19 '16
See also Automobile engines—Fuel; Gas as fuel; Petroleum as fuel

Ignition

- Explosion period in gas engine. R. S. King. Power 43:48-9 Ja 11 '16
 History of the American automobile industry. D. Beecroft. diag Automobile 34:370-1 F 24 '16
 Jump spark vs. make-and-break. R. G. Macy. Power 44:496-7 O 3 '16
 Spark gap under different ignition pressures. L. A. Quayle. il Power 42:896 D 28 '15
See also Automobile engines—Ignition devices

Manufacture

- Making a cylinder-head pattern. E. W. Wallbank. plan Foundry 43:490 D '15
 Production methods in gas engine plant. O. J. Abell. il plan Iron Age 98:529-35 S 7 '16

Starting devices

- Cranking system for starting new Continental engines. il Automobile 34:681 Ap 13 '16

Testing

- Electric dynamometer calibrated in horsepower for gas-engine testing. C. V. Hull. Elec W 67:1245 My 27 '16
 Internal-combustion motor for traction engines. A. A. Potter and W. A. Buck. Am Soc M E J 38:886-8 N '16
 Method of testing a gasoline petrol engine. H. A. Everett. Int Marine Eng 21:83 F '16
 Sources of error in cradle dynamometer tests; abstract. M. Le Pen and J. Villey. Am Soc M E J 38:504 Je '16

Valves

- Reseating gasoline motor valves. H. W. Ricks. diag Mach 23:57-8 S '16

Gas and oil engines, Marine

- Future of the marine oil engine. J. F. Wentworth. diags Int Marine Eng 21:270-1 Je '16
 Skandia marine oil engines. il diag Int Marine Eng 21:220-1 Ap '16

See also Diesel engines, Marine; Motor ships

Gas appliances

- Domestic fuel. E. R. Slade. Am Gas Light J 103:396-7 D 20 '15
 Gas appliance display and demonstration. J. E. Bullard. Gas Age 38:23-6, 75-9, 127-33, 179-84, 234-8, 281-6, 346-50, 419-21, 483-6, 530-3, 607-11 Jl 1-D 1 '16 (to be cont)
 Gas appliance exhibition at Atlantic City. Gas Age 38:595-601 D 1 '16
 Gas in the industries. il Gas Age 38:301-2 S 15 '16
 Industrial gas appliances. S. T. Willson. Am Gas Light J 105:261-3 O 23 '16; Same cond. Gas Age 38:539-41 N 15 '16
 Principles of merchandising applied to the gas appliance industry. J. H. Appel. Am Gas Light J 104:35-8 Ja 17 '16
 Quality merchandising; discussion. Gas Age 38:580-1 D 1 '16

See also Gas cooking

Gas as fuel

- Artificial gas-fired furnace installation; Eddystone ammunition corporation, Eddystone, Pa. C. E. Richardson. il diag J Ind & Eng Chem 8:911-14 O '16
 Automatic gas system. il Textile World 51: 971 F 5 '16
 Baltimore's method of testing hot air delivered by hot-air gas fired furnaces. H. M. Riley. il Am Gas Light J 105:273-6 O 30 '16
 Building up industrial fuel business. S. T. Willson. Gas Age 38:81-4 Jl 15 '16
 Coke-oven gas as fuel. A. W. Morgan. il diags Power 44:310-11 Ag 29 '16

- Efficient use of gas in the home. W. H. Forbes. Am Gas Light J 104:262-3+ Ap 24 '16
 Electricity and the economical use of coal. R. A. Chattock. Engineer 122:348 O 20 '16
 Firing with gas at Elyria power station. A. P. Lewis. il diag Elec Ry J 47:1095-6 Je 10 '16
 Gas consumption for fan blast confectioners' furnace $\frac{1}{2}$ cent per hour. il Am Gas Light J 105:78 Jl 31 '16
 Gas-fired reverberatory furnace at Sulitjelma, Norway. C. Offerhaus. il diags Eng & Min J 100:1033-7 D 25 '15
 Gas fired steam radiators for heating apartment houses. H. T. Owens. il Am Gas Light J 104:49-50 Ja 24 '16
 Gas fuel experiments in British stations. Elec W 68:917 N 4 '16
 Gas-heated boiler helps secure motor service in plating plant at Dayton, Ohio. F. B. Steele. il Elec W 66:1380 D 13 '15
 Gas makes four-inch pipe possible. H. C. Estep. il Iron Tr R 59:1064-5 N 23 '16
 Heat economizing furnaces. il Am Gas Light J 103:381 D 13 '15
 Heat-treating plant using surface combustion; Eddystone ammunition corporation. il diags Met & Chem Eng 15:363-4 S 15 '16
 House heating by gas; with yearly operating costs in forty-seven buildings using natural gas. F. R. Hutchinson. il Heat & Ven 13:19-33 Mr '16
 Industrial fuel; discussion. Gas Age 38:582-3 D 1 '16
 Industrial processes and appliances using gas. E. F. Davis. Gas Age 38:395-8, 458, 519-20, 612-13 O 16-D 1 '16 (to be cont)
 Is industrial business worth while? H. E. G. Watson. il Gas Age 38:297-8 S 15 '16
 Largest manufactured-gas-fired furnaces, in operation, show decided economy over fuel-oil-fired installations. il Am Gas Light J 105: 113-15 Ag 21 '16
 Metals and gas. il Metal Ind n s 14:325-9 Ag '16
 Modern ideas in heat treatment. il diag Iron Tr R 59:1047-9 N 23 '16
 Municipal power plant at Medicine Hat, Can. A. G. Christie. il plans Power 43:133-42 F 1 '16
 Opportunities exist for gas makers in industrial fuel field. W. A. Eilers. Am Gas Light J 105:22-3 Jl 10 '16
 Remington arms company's gas-fired annealing furnaces for rifle parts handle 20-ton charges. il diags Am Gas Light J 105:209-10 O 2 '16; Same cond. Iron Age 98:636-7 S 21 '16; Excerpts. Am Soc M E J 38:932-3 N '16
 Running on town gas. A. L. Clayden. Automobile 35:618 O 12 '16
 Tests indicate that gas may be used profitably for case-hardening of steel. C. M. Walter. Am Gas Light J 105:52 Jl 24 '16
 Three different schemes carried out in original gas burner installation under boilers of Toledo railways & light company. il Am Gas Light J 105:99 Ag 14 '16
 Three principal difficulties presented in the use of the surface combustion principle for the gas firing of boilers. N. Latta. Am Gas Light J 105:225-9 O 9 '16
See also Blast furnace gas; Coke ovens; Combustion, Surface; Gas; Gas and oil engines; Gas burners; Gas cooking; Gas heating; Gas incinerators; Gas ovens; Gas producers; Gas stoves
- Gas association, National commercial.** See National commercial gas association
- Gas association, Southern.** See Southern gas association
- Gas burners.**
 Application of high temperature, water jacketed, calendar heating burners. diags Textile World 51:2573 My 27 '16
 Arrangements of gas burners under power plant boilers. T. W. Reynolds. diag Elec W 68:1104 D 2 '16
 Bunsen burner design and operation. G. C. Carnahan. Am Gas Light J 104:218-20 Ap 3 '16
 Efficiency of pyrogenetic blast burner due largely to high rate of combustion of gas in a concentrated space. G. C. Shadwell. il diags Am Gas Light J 105:101-2 Ag 14 '16

Gas burners—Continued

- Experiments on the production of gasoline from hydrocarbon oils of high boiling points. E. L. Davies. *diags J Ind & Eng Chem* 8: 116 F '16
- Gas burners for industrial work. F. S. Sinnatt. *diags Engineer* 122:355 O 20 '16
- Gas piping in the Banker's club, Equitable building, New York. C. F. Herington. *plans Am Gas Light J* 104:81-2 F 7 '16
- Modern development in the combustion of blast-furnace gas with special reference to the Bradshaw gas burner. K. Huessener. *il diags Am Inst Min E Bul* 110:443-74 F '16
- Abstract (Burners for blast furnace gas). *Iron Tr R* 59:1056 N 23 '16
- Pilot flame ignition of incandescent gas lamps. C. W. Jordan. *diags Illum Eng Soc* 10:670-9 no 8 '15
- Simple gas burner for small laboratory furnaces. D. L. Randall. *diag J Ind & Eng Chem* 7:873 O '15; Same. *Sci Am S* 81:85 F 5 '16
- Utilization of blast furnace gas. A. N. Diehl. *diags Iron Tr R* 57:946-8, 993-7, 1040-2+ N 11-25 '15; Same cond. *Iron Age* 97:1384-8 Je 8 '16; Abstract. *Iron Tr R* 57:853-6 O 28 '15
- See also* Bunsen burners

Gas cleaning

- British practice in the condensation, washing and scrubbing of coal gas. W. B. Davidson. *Am Gas Light J* 103:410-12 D 27 '15
- Washing blast furnace gas at South Chicago. *il diags Iron Age* 97:53-7 Ja 6 '16
- See also* Gas purification

Gas companies

- Chicago's experience with a separate lighting division. C. A. Luther. *Am Gas Light J* 105:306-8 N 6 '16; Same cond. *Gas Age* 38:558 N 15 '16
- Comparative business of nine of the larger Massachusetts gas companies. *Am Gas Light J* 105:230-1 O 9 '16
- Comparative statistics of Wisconsin gas companies. *Gas Age* 38:71-4 Jl 15 '16
- One city's gas business; Consolidated gas company in Manhattan and The Bronx. *Am Gas Light J* 104:117 F 21 '16
- Past and present conditions in Baltimore. J. L. Bailey. *Gas Age* 38:16-18 Jl 1 '16
- See also* Gas industry; Gas lighting; also Consolidated gas company, New York

Accounting

- Classification and analysis of gas accounts. V. V. Smith. *Am Gas Light J* 104:292-3 My 8 '16

Advertising

- See* Gas industry—Advertising

Employees

- Education of employees brings big return in economies and in increased output. C. F. Paige. *Am Gas Light J* 105:53-4 Jl 24 '16
- Overcoming the physical objections to study. G. W. Allen. *Am Gas Light J* 105:18 Jl 3 '16
- Relation of the manager to the training of employees. L. Galloway. *Gas Age* 38:569-71 D 1 '16

Finance

- Returns of Boston Consolidated show increased sales. *Am Gas Light J* 105:199 S 25 '16

Law

- Company's right to insist on its approval of consumer's equipment before supplying service. *Gas Age* 38:147-8 Ag 1 '16

- Gas company's duty as to care before turning on gas. *Gas Age* 38:303-4 S 15 '16

- See also* Gas companies—Service pipes

Management

- Burner maintenance; discussion. *Gas Age* 38:587-8 D 1 '16
- Differential rate schedule increases annual gas consumption by industrial consumers in Baltimore 55,578,700 cu. ft. *Am Gas Light J* 105:156-7 S 4 '16
- Free maintenance; experience of the Christchurch gas, coal and coke company, New Zealand. R. C. Bishop. *il Am Gas Light J* 104:10-11 Ja 3 '16

- Free maintenance of gas fixtures. *Am Gas Light J* 105:168 S 11 '16
- Free piping at Portland, Me. B. Smart. *Am Gas Light J* 104:363 Je 5 '16
- Gratuitous work. A. L. Tossell. *Am Gas Light J* 104:250-3 Ap 17 '16
- Gratuitous work. B. F. Noble. *Am Gas Light J* 104:298-9 My 8 '16

- How can gas and electric companies under one management render the best light service? A. B. Spaulding and N. H. Potter. *Illum Eng Soc* 10:793-802; Discussion. 802-13 no 8 '15

- Inspection campaign effective in developing sales in Northern Liberties district of Philadelphia. J. M. Ruegenburg. *Am Gas Light J* 105:202 S 25 '16

- Merchandising lighting fixtures by the Wilmington, Del. gas company. W. A. Morris. *Am Gas Light J* 104:342 My 29 '16

- New blood in the organization. *Am Gas Light J* 105:169 S 11 '16

- Profit-sharing plan for Peoples gas light and coke company, Chicago. *Eng Rec* 74:609 N 18 '16

- Residence burner maintenance in Lowell. W. A. Parkhurst. *Am Gas Light J* 104:170-1 Mr 13 '16

- Residence lighting maintenance. H. H. Newman. *Am Gas Light J* 104:276-7 My 1 '16

- Selection, training and compensation of industrial fuel salesmen. G. M. Karshner. *Am Gas Light J* 104:406 Je 26 '16

- Small consumer. S. E. Vecker. *Am Gas Light J* 104:295 My 8 '16

- Testing salesman and territory; United gas improvement company. *Am Gas Light J* 104:215 Ap 3 '16

- Thoughts on merchandising by a gas company. J. B. Myers. *Am Gas Light J* 104:324-5 My 22 '16

- See also* Gas companies—Service pipes

Public relations

- Public relations. E. N. Wrightington. *Am Gas Light J* 104:87, 90-1 F 7 '16

Rates

- See* Gas rates

Records

- Solicitors and house record cards—methods of checking. E. D. V. Dickey. *Am Gas Light J* 104:294-5 My 8 '16

Regulation

- Commission's right to order extension of gas systems. *Gas Age* 38:496-7 N 1 '16
- Decision in complaint of Trenton, N. J. *Am Gas Light J* 104:289-92 My 8 '16
- Meter reading charge upheld in Pennsylvania. *Am Gas Light J* 105:75-6 Jl 31 '16
- Pennsylvania public service commissioner refuses to sustain gas company in requiring deposit from some and waiving it to others. *Am Gas Light J* 105:35-6 Jl 17 '16
- Report of the board of gas and electric light commissioners of Massachusetts to the state legislature relative to the inspection and testing of gas meters. *Am Gas Light J* 104:155-6 Mr 6 '16

- See also* Gas—Standards

Service pipes

- Expense of service pipes; court decisions. *Gas Age* 38:94 Jl 15 '16
- Gas company not liable for leaks in owners' pipes. *Gas Age* 38:369-70 O 2 '16

Valuation of property

- Unit prices for street mains in the Buffalo gas case. A. C. Humphreys. *Eng N* 76:516-17 S 14 '16
- Value of inactive plant included in determining rates for Richmond, Ind. *Am Gas Light J* 105:181-2 S 18 '16

Gas compressors

- Development of the law relating to the use of gas compressors in natural gas production. S. S. Wyer. *Am Inst Min E Bul* 110:263-79 F '16; Discussion. 113:946-52 My '16
- Necessary use and effect of gas compressors on natural gas field operating conditions. S. S. Wyer. *il diags Am Inst Min E Bul* 110:281-97 F '16

Gas cooking

Cooking with gas on a mammoth scale. E. M. Paterson. *Am Gas Light J* 103:407 D 27 '15
 Gas appliance display and demonstration. J. E. Bullard. *il Gas Age* 38:346-50, 419-21 O 2-16 '16

Gas versus electricity for cooking purposes. S. C. Bratton and G. D. Mantle. *Gas Age* 38:527-9, 574-6 N 15-D 1 '16

Gas will hold its place in future for cooking because it is best fuel for purpose. F. S. Wade. *Am Gas Light J* 105:220 O 2 '16

Southern servants learn to use gas economically. E. D. Brewer. *il Am Gas Light J* 104:161-2 Mr 13 '16

Gas cutting. See Oxyacetylene flame; Oxyhydrogen flame**Gas detector**

Means electric gas detector. *Coal Age* 9:705 Ap 22 '16

New firedamp detector; abstracts. G. A. Burrell. *il diags Coal Age* 9:157-8 Ja 22 '16; *Eng M* 50:940 Mr '16; *J Ind & Eng Chem* 8:365-6 Ap '16; *Sci Am* 114:422 Ap 22 '16

Gas distribution

Distribution of gas under high pressures. D. E. Keppelmann. *il diags Gas Age* 38:453-7 N 1 '16

Industry needs a flexible tubing in which it will be safe to allow the gas pressure to remain at all times. *diags Am Gas Light J* 105:300-1 N 6 '16

Instructions for gas company fitters. G. Wehrle. *Gas Age* 38:603-4 D 1 '16

Interesting Canadian wrinkles on distribution. P. S. Lamb. *Gas Age* 38:287-90 S 15 '16; Excerpt (Great mistake in the distribution systems of some cities has been lack of foresight). *Am Gas Light J* 105:133 Ag 28 '16

Problem of laying mains and distributing gas has risen to great importance. H. M. Riley. *Am Gas Light J* 105:51-2 Jl 24 '16

Review of American gas institute committee work on distribution subjects. G. I. Vincent. *Am Gas Light J* 104:394-5 Je 19 '16

San Francisco's hills add much to the beauty of the city—also to the cost of laying pipe. D. E. Keppelmann. *Am Gas Light J* 105:216-20 O 2 '16

Tight high pressure line. *Gas Age* 38:345 O 2 '16

Unique piping systems developed in connection with gas illumination of the Philadelphia civic exposition. C. S. Snyder and F. H. Gilpin. *il plan Am Gas Light J* 105:195-6 S 25 '16

See also Gas pipes

Gas engineering

American gas institute Chicago convention, Oct. 17-20. *Gas Age* 38:471-82 N 1 '16

See also Gas heating; Gas lighting; Gas power plants

Study and teaching

Illinois gas research fellowships. *Gas Age* 38:201 Ag 15 '16

Gas engineers, New England association of. See New England association of gas engineers**Gas engines.** See Gas and oil engines**Gas explosions.** See Explosions**Gas filled-lamps.** See Electric lamps, Tungsten**Gas fitting**

Adequate piping of buildings most important feature in promoting utilization of gas. W. T. Rasch. *Am Gas Light J* 105:338-9 N 20 '16

Adequate piping of houses; discussion. *Gas Age* 38:588-9 D 1 '16

Co-operation between the gas company and the architect. D. Knickerbocker. *Illum Engr* 9:252 Ag '16

Gas piping in the Banker's club, Equitable building, New York. C. F. Herington. *plans Am Gas Light J* 104:81-2 F 7 '16

House piping methods. W. H. Coffin. *Gas Age* 38:299-300 S 15 '16; Same. *Metal Work* 86:520 O 27 '16

How the gas company and the architect can co-operate. D. K. Boyd. *Am Gas Light J* 105:4-6 Jl 3 '16

Instructions for gas company fitters. G. Wehrle. *Gas Age* 38:221-6, 291-5, 333-6, 406-9, 461-4, 523-6, 602-4 S 1-D 1 '16 (to be cont)
 See also Gas fixtures; Plumbing

Gas fixtures

Combination fixtures; discussion. *Gas Age* 38:589 D 1 '16

Gas dome for indirect lighting. J. Wavrek, jr. *diags Bldg Age* 38:61-2 Ag '16

Lighting of Infantry hall, Providence. R. I. R. F. Pierce. *il plan Am Gas Light J* 105:145-7 S 4 '16

Modern gas equipment for residence lighting. M. A. Combs. *Illum Eng Soc* 11:882-4 no 8 '16

Replacing old types with modern fixtures. S. Snyder. *Gas Age* 38:572-3 D 1 '16; Same. *Am Gas Light J* 105:344-5 N 20 '16

Report of committee of illuminating engineering society. *Am Gas Light J* 105:199 S 25 '16

Gas flow

Flow of superheated ammonia. E. F. Miller. *Power* 44:605-6 O 24 '16; Same cond. *Am Soc M E J* 38:939-40 N '16

Flow of superheated ammonia through orifices; abstracts. E. F. Miller. *Power* 42:871-4 D 21 '15; *Am Soc M E J* 38:95-7 Ja '16

Gas pressure regulator. J. R. Powell. *diag J Ind & Eng Chem* 8:367-8 Ap '16

German apparatus for measuring pressure and velocity of gases; abstract. E. Stach. *diags Am Soc M E J* 37:715-16; 38:91-2 D '15-Ja '16

Heat balance of a blast-furnace stove. R. S. G. Knight. *Iron Age* 98:1105 N 16 '16

Impact tube for measurement of fluids. S. A. Moss. *diags Am Soc M E J* 38:869-76 N '16

Instruments for measuring flow of gas in pipes. *il Iron Age* 97:832-3 Ap 6 '16

Proposed electrical methods of recording gas flow in channels and pipes based on the linear hot-wire anemometer. L. V. King. *il diags J Fr Inst* 182:191-204 Ag '16

See also Air flow; Gas measurement

Gas heaters

Gas fired, hot air, circulating heaters. H. T. Owens. *il diag Am Gas Light J* 104:113-14 F 21 '16

Gas-fired hot air radiators. H. T. Owens. *il diag Am Gas Light J* 104:177-8 Mr 20 '16

Gas heater hints. W. H. Schofield. *Gas Age* 38:490-1 N 1 '16

Helios flameless combustion radiant heater. *il Am Gas Light J* 104:93 F 7 '16

Phases of room heating by means of gas burning appliances. G. S. Barrows. *il Am Soc Heat & V E* 21:230-41 '15; Same. *Dom Eng* 70:171-4, 201-3 F 6-13 '15; Same. *Metal Work* 83:765-8 My 28 '15; Discussion. *Am Soc Heat & V E* 21:341-6 '15

Warm air for industrial drying processes. G. C. Shadwell. *il diag Metal Work* 86:271-2 S 1 '16

See also Gas water heaters

Testing

Swiss tests of gas-fires. E. Ott. *diags plan Am Gas Light J* 104:131-5 F 28 '16

Gas heating

Auxiliary heating; discussion. *Gas Age* 38:586 D 1 '16

Experimental data on househeating by artificial gas. W. H. Taylor. *il Am Gas Light J* 104:407 Je 26 '16

Gas for domestic and commercial heating. W. H. Schofield. *Gas Age* 38:363 O 2 '16

House heating by gas; report. *Am Gas Light J* 104:83-6 F 7 '16

Methods of popularizing gas for house heating purposes in Baltimore. T. King. *Am Gas Light J* 105:58 Jl 24 '16

Possibilities of house heating by gas. W. H. Bradley. *Am Gas Light J* 104:122 F 21 '16

Value of domestic heating to gas companies. W. H. Schofield. *Gas Age* 38:195-6 Ag 15 '16

See also Gas as fuel; Gas heaters; Gas water heaters

Gas holders. See Gasholders**Gas ignition.** See Gas—Ignition**Gas incinerators**

Gas incinerator. J. B. Ricketts. *Gas Age* 38:296, 362, 422, 488 S 15-N 1 '16

Gas industry

- Address to the New England association of gas engineers. H. K. Morrison. *Am Gas Light J* 104:129-30 F 28 '16
- American gas centenary. C. C. Thomas. *Am Soc M E J* 38:560 J 1 '16
- America's gas centenary fittingly celebrated. *Il Am Gas Light J* 104:409-10 Je 26 '16
- Any legislation that strikes a blow at the value of gas plant residuals is a blow against adequate preparedness. W. H. Gartley. *Am Gas Light J* 105:187 S 18 '16
- Baltimore company adds 36,824 cubic feet per hour to its output for industrial uses during months of May, June and July. *Am Gas Light J* 105:151 S 4 '16
- Commercial problems of the day. F. S. Wade. *Gas Age* 38:537-8 N 15 '16
- Diversity and load factor; discussion. *Gas Age* 38:581-2 D 1 '16
- Doherty men see future of gas. *Gas Age* 38:605-6 D 1 '16
- Effect of war on gas business in Germany has been to impress upon the country the great economic importance of the industry. M. Hase. *Am Gas Light J* 105:171 S 11 '16
- Future commercial representative of the gas industry will be thoroughly trained man. J. Haines. *Am Gas Light J* 105:70 J 31 '16
- Gas and other things; plea for fair play in business. A. G. Glasgow. *Am Gas Light J* 104:401-3 Je 26 '16
- Gas engineer of the last century. H. E. Jones. *Engineer* 122:410-11 N 10 '16
- Gas industry in England. *Am Gas Light J* 105:188 S 18 '16
- Gas industry in the movies. E. A. Dench. *Am Gas Light J* 104:17 Ja 10 '16
- Gas industry in the war. *Gas Age* 38:493-4 N 1 '16
- Greatest promise for future expansion of gas industry lies in small nearby communities. J. E. Bullard. *Am Gas Light J* 105:314-15 N 13 '16
- How to secure more wholesale business. C. A. Munroe. *Am Gas Light J* 104:283-4 My 1 '16
- In use of gas for lighting Pacific coast lags behind older communities. F. S. Wade. *Am Gas Light J* 105:210 O 2 '16
- Industrial fuel business. S. T. Willson. *Am Gas Light J* 104:266-8 Ap 24 '16
- Industrial gas appliances. S. T. Willson. *Am Gas Light J* 105:261-3 O 23 '16; Same cond. *Gas Age* 38:539-41 N 15 '16
- Industrial processes and appliances using gas. E. F. Davis. *Gas Age* 38:395-8, 458, 519-20, 612-13 O 16-D 1 '16 (to be cont)
- One hundred years of the American gas business. G. Beadenkopf. *Il Gas Age* 38:9-15 J 1 '16
- Paying the war time gas bill in France. F. Miltoun. *Am Gas Light J* 105:81-3 Ag 7 '16
- Position of the gas industry in Great Britain. N. H. Humphrys. *Am Gas Light J* 104:217-18 Ap 3 '16
- Present practice in the sale of gas in the United Kingdom. F. W. Goodenough. *Am Gas Light J* 103:356-9 D 6 '15
- Report of lighting fixture committee, Pennsylvania gas association. *Am Gas Light J* 104:277-8 My 1 '16
- Report of the industrial fuel committee, N. C. G. A. S. T. Willson. *Am Gas Light J* 103:412 D 27 '15
- Selling appliances through consumers. H. T. Owens. *Il Gas Age* 38:137-40 Ag 1 '16
- Selling gas service. G. Williams. *Am Gas Light J* 104:16-7 Ja 3 '16
- Two-thirds of manufactured gas sold to American consumers to-day is used for purposes other than illumination. W. Clark. *Am Gas Light J* 105:67-70 J 31 '16
- Year 1916 has seen gas used for industrial purposes to an extent never equalled in industry's history. *Am Gas Light J* 105:341 N 20 '16
- Year's progress in the gas industry. W. E. McKay. *Gas Age* 38:459-60 N 1 '16; Same. *Am Gas Light J* 105:279-80 O 30 '16
- See also Gas appliances; Gas companies; Gas lighting; Gas power plants

Advertising

- Advertising circulars; methods of the Public service gas company of New Jersey. H. T. Owens. *Il Am Gas Light J* 104:1-3 Ja 3 '16
- Constructive advertising. J. W. Lansley. *Am Gas Light J* 104:211-13 Ap 3 '16
- Co-operative advertising. W. B. Conant. *Il Am Gas Light J* 104:311 My 15 '16
- Gas appliance display and demonstration. J. E. Bullard. *Il Gas Age* 38:281-6, 419-21, 483-6, 530-3, 607-11 S 15, O 16-D 1 '16
- Intensified selling applied to water heaters. A. A. Higgins. *Am Gas Light J* 104:182-3 Mr 20 '16
- Newspaper advertising. *Il Am Gas Light J* 103:370 D 13 '15
- Seasonable displays. W. D. Stoddard. *Am Gas Light J* 104:123 F 21 '16
- Show window—does it pay? S. H. Alexander. *Am Gas Light J* 103:362 D 6 '15
- Welsbach company's clown presents new features in gas lighting display design. *Il Am Gas Light J* 105:203-4 S 25 '16

Exhibitions

- Exhibition at National commercial gas association convention. *Am Gas Light J* 105:357-9 N 27 '16
- Gas appliance display and demonstration. J. E. Bullard. *Il Gas Age* 38:234-8 S 1 '16
- Gas appliance exhibition at Atlantic City. *Gas Age* 38:595-601 D 1 '16
- 75 exhibitors listed for annual convention of National commercial gas association. *Am Gas Light J* 105:271-2 O 23 '16
- Show at Washington. D. C. *Il Am Gas Light J* 103:363-4 D 6 '15

Statistics

- Bar system of charting has little to recommend it for general application to gas company records. S. C. Tarrant. *Am Gas Light J* 105:355-6 N 27 '16
- Gas manufactured in this country in 1914. *Am Gas Light J* 105:21 J 10 '16; Same cond. *Coal Age* 10:186 J 29 '16
- Massachusetts gas commission's 31st annual report. *Am Gas Light J* 104:361 Je 5 '16

Gas lamps

- Continuous line of gas arcs outshine neighboring electric lights. *Il Am Gas Light J* 105:183 S 18 '16
- Large and small units alike. *Il Am Gas Light J* 104:61 Ja 24 '16
- Report of the committee on progress; gas and oil lamps and appurtenances. *Illum Eng Soc* 11:707-11 no 8 '16
- Welsbach kinetic outdoor gas lamp. *Il diags Gas Age* 38:256-7 S 1 '16
- See also Gas burners; Gas lighting; Gas mantles; Pentane lamps

Gas lighting

- American gas institute; illumination section Chicago convention. *Gas Age* 38:477-9 N 1 '16
- Bowling alley lighting. R. F. Pierce. *diags Am Gas Light J* 104:33-5 Ja 17 '16
- Chicago's experience with a separate lighting division. C. A. Luther. *Am Gas Light J* 105:306-8 N 6 '16
- Commercial lighting. E. M. Colquhoun. *Am Gas Light J* 104:3-5 Ja 3 '16
- Commercial side of gas lighting. R. F. Pierce. *Am Gas Light J* 104:145-7 Mr 6 '16
- Cradle of American gas lighting. H. T. Owens. *Il Am Gas Light J* 104:369-70 Je 12 '16
- Developments in gas-lighting appliances; abstract. R. F. Pierce. *Elec R & W Elec'n* 69:595 S 30 '16
- Duct system effects 10 per cent economy in English factory high pressure gas lighting installation. *Am Gas Light J* 105:212 O 2 '16
- Explanation of a rational basis of comparing gas and electric lighting. G. C. Shadwell. *Am Gas Light J* 104:65-7 Ja 31 '16
- Flood lighting by gas gives most satisfactory lighting effect. C. B. Babcock. *Am Gas Light J* 105:212-13 O 2 '16
- Gas and electric lighting in the home. C. H. French and C. J. Van Gieson. *Gas Age* 38:365-6 O 2 '16
- Gas and hygiene. M. von Gruber. plans *Am Gas Light J* 104:18-22 Ja 10 '16

Gas lighting—Continued

- Gas illumination of the Philadelphia civic exposition. C. S. Snyder and F. H. Gilpin. *il plan Illum Eng Soc* 11:846-50 no 8 '16; Same. *Gas Age* 38:382, 440 O 2-16 '16
- Gas light in photography. R. F. Pierce. *il diags plan Am Gas Light J* 103:385-8 D 20 '15
- Gas lighted cathedral, SS. Peter and Paul, Philadelphia. *il Am Gas Light J* 103:395 D 20 '15
- Gas lighting and hygiene. R. F. Pierce. *Am Gas Light J* 104:321-2 My 22 '16
- Gas lighting in a cathedral. J. D. Lee, jr. *il plan Illum Eng Soc* 11:693-703 no 7 '16
- Gas lighting in industrial plants. T. Scofield. *il Eng M* 52:67-82 O '16
- Gas street lighting. F. R. Hutchinson. *il diags Illum Eng Soc* 10:pt 1a 1080-5 no 9 '15
- Illumination of lease and the gas company employee. J. D. Lee, jr. *Am Gas Light J* 104:sup18 Je 26 '16
- Lighting; discussion. *Gas Age* 38:587 D 1 '16
- Maximum returns cannot be expected from gas-electric plants if lighting is neglected. J. P. Conroy. *Am Gas Light J* 105:118-19 Ag 21 '16
- Modern gas equipment for residence lighting. M. A. Combs. *Illum Eng Soc* 11:882-4 no 8 '16
- New development in high pressure gas lighting. *Illum Engr* 9:286-7 S '16
- One hundred years of gas lighting in America. H. T. Owens. *Am Gas Light J* 104:376-7 Je 12 '16
- Pressure regulation. *Am Gas Light J* 105:249 O 16 '16
- Progress in outdoor lighting with gas; abstract. C. I. Hodgson. *Elec R & W Elec'n* 67:1113 D 18 '15
- Progress in store front lighting with gas. C. I. Hodgson. *il diag Illum Eng Soc* 11:885-7 no 8 '16
- Progress of gas-lighting appliances during past century. W. Clark. *Gas Age* 38:122-5 Ag 1 '16
- Report on a year's progress in gas lighting. *Gas Age* 38:353-5 O 2 '16
- Safety of gas lighting stands out prominently as one of its great recommendations. *Am Gas Light J* 105:347-8 N 20 '16
- Unique piping systems developed in connection with the gas illumination of the Philadelphia civic exposition. C. S. Snyder and F. H. Gilpin. *il plan Am Gas Light J* 105:195-6 S 25 '16

See also Gas; Gas burners; Gas companies; Gas fixtures; Gas lamps; Gas mantles; Gas meters

Cost

- Decision in complaint of Trenton, N. J. *Am Gas Light J* 104:289-92 My 8 '16

Ignition

See Gas—Ignition

Rates

See Gas rates

Gas liquor. *See* Ammonia

Gas machines

- Tirrill equalizing gas machine. *Eng & Min J* 101:564 Mr 25 '16

Gas mains. *See* Gas pipes

Gas mantles

- Ability of artificial fibre mantle to withstand shocks. E. L. Knoedler. *Am Gas Light J* 105:315-17 N 13 '16
- Treatment of mantle ash. *Am Gas Light J* 104:173 Mr 13 '16

Manufacture

- Air conditioning in a gas mantle plant. *il Heat & Ven* 13:11-17 Ji '16
- Manufacture of the incandescent gas mantle. E. L. Knoedler. *Gas Age* 38:148, 104, 160 Ji 1-Ag 1 '16
- Recent development in incandescent gas mantles. E. L. Knoedler. *il Met & Chem Eng* 15:635-9 D 1 '16
- Thorium; how it is extracted for making gas mantles. T. Owens. *Sci Am S* 81:327 My 20 '16
- Welsbach company, moves into new buildings. Gloucester, N. J. *il Am Gas Light J* 105:289-90 O 30 '16

Gas manufacture and works

- Air supply adjustments in Rochester gas works effect saving of 64 lb. of fuel per ton of coal carbonized. W. H. Earle. *il Am Gas Light J* 105:65-6 Ji 31 '16
- Benches for medium sized gas works. H. W. Douglas. *Gas Age* 38:340-1 O 2 '16
- Comparison of modern coal carbonization plants. V. Baker. *Am Gas Light J* 104:330-2 My 22 '16
- Decomposition of hydrocarbons and the influence of hydrogen in carbureted water gas manufacture. M. C. Whitaker and E. H. Leslie. *diag J Ind & Eng Chem* 8:593-601, 684-95 Ji-Ag '16
- Description of Pintsch-Bolz vertical producers. *diags Gas Age* 38:90-1 Ji 15 '16
- Disposal of gas house wastes. P. Hansen. *plan Am Gas Light J* 104:228-9 Ap 10 '16
- Efficiency tests at Budapest-Obuda gas works. *Gas Age* 38:91-3 Ji 15 '16
- Electric drive for exhausters. *diag Am Gas Light J* 104:411-13 Je 26 '16
- Electricity in by-product coke manufacture. *il Elec R & W Elec'n* 68:583-5 Ap 1 '16
- Finding of a means to save coal in the production of gas. *Am Gas Light J* 105:244 O 16 '16
- Four general conditions determine cost of manufacturing gas. H. W. Douglas. *Am Gas Light J* 105:197-8 S 25 '16
- Gas holder tanks at Sheridan plant built for internal pressure of 100 lb. *il Am Gas Light J* 105:277 O 30 '16
- Gas producers with by-product recovery. A. H. Lymn. *il diags Am Soc M E J* 37:253-66 My '15; Same. *Iron Tr R* 57:1123-30+ D 9 '15
- History of the development of water gas. O. B. Evans. *Am Gas Light J* 104:51-4, 67-9 Ja 24-31 '16
- Instructions for gas company fitters. G. Wehrle. *il diags Gas Age* 38:406-9, 523-6 O 16, N 15 '16
- Lecture on the history, manufacture and uses of gas. G. W. Allen. *il Gas Age* 38:177-8 Ag 15 '16
- New type of seal pot does away with tar accumulations. *il Am Gas Light J* 105:334 N 20 '16
- Plant of the Arlington, Mass., gas light company. W. B. Conant. *il Am Gas Light J* 104:337-8 My 29 '16
- Remodelling the Elswick gasworks. *il plans Engineer* 121:110, 114-15 F 4 '16
- See also* Gas—Standards; Gas, Oil; Gas, Water; Gas companies; Gas power plants; Gas producers; Gas purification; Gas reports; Gas testing; Gas holders; Tar

By-products

- Apparatus and operations in by-product recovery. *il Gas Age* 38:513-18 N 15 '16
- By-products of gas manufacture; hydrocyanic acid and its applications. *Sci Am S* 81:75 Ja 29 '16
- Course in gas manufacture and by-product recovery at Johns Hopkins university. *Met & Chem Eng* 14:434 Ap 15 '16
- Removal of sulphur from spent oxide. E. J. Murphy. *Am Gas Light J* 105:278 O 30 '16; Same. *Gas Age* 38:522 N 15 '16
- Residuals made, and prices obtained, Massachusetts gas companies, 1916; tabulation. *Am Gas Light J* 105:281 O 9 '16
- See also* Gas purification

Costs

- Analyzing production costs by graphic charts. S. C. Tarrant. *Gas Age* 38:417-18 O 16 '16
- Cost of additions to gas plant at Fitchburg, Mass. *Am Gas Light J* 105:367-8 N 27 '16
- Vertical retort operation. *Gas Age* 38:33-4 Ji 1 '16

Gas measurement

- Deviation of natural gas from Boyle's law. R. F. Earhart and S. S. Wyer. *il diags Am Soc M E J* 38:695-9; Discussion. 700-8 S '16
- Establishing a standard of measurement for natural gas in large quantities. F. P. Fisher. *il diags Am Soc M E J* 38:681-92 S '16; Same cond. *Iron Tr R* 58:870-4 Ap 20 '16; Discussion. *Am Soc M E J* 38:692-4 S '16

Gas measurement—Continued

- Flow of air through thin plate orifices. E. O. Hickstein. *Am Soc M E J* 38:216-18; Discussion. 38:218-22 Mr '16
- Method of determining dust loss at Copper Cliff, Ont. E. H. Robie. *il diag Eng & Min J* 101:505-8 Mr 18 '16
- Standard methods of gas testing. *il diag U S Bur Stand Circ* 48:20-33 '16
- See also* Gas flow; Gas meters

Gas meters

- Gas meter with poppet valves. *diag Am Gas Light J* 104:237 Ap 10 '16
- Is a gas company justified in charging a higher rate for gas served through a prepayment meter? A. R. Manley. *Am Gas Light J* 104:260-1 Ap 24 '16
- Life of gas meters. R. Lessing. *Gas Age* 38:249 S 1 '16
- Proportional meters. *Am Gas Light J* 104:44-5 Ja 17 '16
- Standard methods of gas testing. *il U S Bur Stand Circ* 48:23-33 '16

Testing

- Gas meters; tabulation of results of tests. C. D. Jenkins. *Am Gas Light J* 104:171-2 Mr 13 '16
- Report of the board of gas and electric light commissioners of Massachusetts to the state legislature relative to the inspection and testing of gas meters. *Am Gas Light J* 104:155-6 Mr 6 '16
- Standard methods of gas testing. *U S Bur Stand Circ* 48:158-76 '16

Gas ovens

- Applications of electricity in competition with gas; electrically heated enameling ovens. *Gas Age* 38:535-6 N 15 '16
- Gas vs. electricity for japanning and enameling ovens. C. L. Gehrlich. *il Am Gas Light J* 103:401-3 D 27 '15
- New design of by-product gas oven. W. Feicks. *diags Gas Age* 38:20-1 J1 1 '16
- Operation shows that as high a per cent of perfect work in japanning is obtained from a gas oven as an electric oven. H. T. Hood. *Am Gas Light J* 105:250-1 O 16 '16
- Surface combustion affords efficient means of converting coal-fired brick bake ovens to gas. H. L. Read. *il diag Am Gas Light J* 105:353-5 N 27 '16

See also Gas retorts

Gas pipes

- Difficult work in large gas pipe laying under the Lachine canal and adjacent swamps. C. H. Osler. *diags Am Gas Light J* 103:371-3 D 13 '15
- English high pressure mains. B. F. Botwood. *diags Am Gas Light J* 104:106-8 F 14 '16
- Expense of service pipes; court decisions. *Gas Age* 38:34 J1 15 '16
- Gas company not liable for leaks in owners' pipes. *Gas Age* 38:369-70 O 2 '16
- High pressure system; and welding mains at Springfield, Mass. A. S. Hall. *il diags Am Gas Light J* 104:196-8 Mr 27 '16
- Interesting Canadian wrinkles on distribution. P. S. Lamb. *Gas Age* 38:287-90 S 15 '16
- Pipe couplings; abstract. R. S. Lord. *Am Soc M E J* 38:191 F '16
- Restoration of gas mains over rapid transit tunnels. J. E. Worsley. *il diags plans Gas Age* 38:61-7, 115-20 J1 15-Ag 1 '16
- Rust deposits in gas mains and services. A. F. Kersting; J. W. Lansley. *Am Gas Light J* 104:339-42 My 29 '16
- Selecting pipe sizes required in gas fitting. *Metal Work* 85:411-12 Mr 24 '16
- Spanning Brazos river with 10-in. mains. C. R. Sutton. *il Gas Age* 38:120-1 Ag 1 '16
- Subsurface congestion has become an acute problem in New York. C. N. Green. *il Am Gas Light J* 105:49-51 J1 24 '16
- Temporary pipes along curb and on trestles over street carry good part of New York city's gas supply during subway construction. C. N. Green. *il Am Gas Light J* 105:33-5 J1 17 '16

See also Gas fitting

Gas plants. *See* Gas manufacture and works

Gas power

- Gas power in England. F. R. Parsons. *Power* 44:54 J1 11 '16
- See also* Blast furnace gas; Gas and oil engines; Gas as fuel; Power cost

Gas power plants

- Economical production of power from coke-oven gas. G. Dearn. *Inst E E J* 54:646-50 Je 1 '16; Abstract. *Am Soc M E J* 38:760-1 S '16; Abstract. *Am Gas Light J* 105:190 S 18 '16; Abstract. *Iron Age* 98:581 S 14 '16; Discussion. *Inst E E J* 54:650-5 Je 1 '16
- Electrification of isolated factories. *il plans Engineer* 122:94-5 Ag 4 '16
- Ford gas-steam plant, Detroit. T. Wilson. *il Power* 44:706-10 N 21 '16
- Fuel economy scheme for Brighton; coalite plant. *Engineer* 122:309-10 O 6 '16
- Gas engine drive in large machine shop. F. L. Prentiss. *il Iron Age* 98:389-91 Ag 24 '15; Same. *Am Gas Light J* 105:148 S 4 '16
- Gas producers with by-product recovery. A. H. Lynn. *il diags Am Soc M E J* 37:253-66 My '15; Same. *Iron Tr R* 57:1123-30+ D 9 '15
- Power with by-product recovery. T. R. Wollaston. *Engineer* 122:161 Ag 25 '16; Abstract. *Iron Age* 98:770 O 5 '16
- Sommerfeld gas-engine plant. W. O. Rogers. *il Power* 42:861-3 D 21 '15

See also Gas and oil engines; Gas producers

Gas pressure. *See* Gas flow**Gas producers**

- By-product coal ammonia as a domestic nitrate source. L. A. Riley. *Met & Chem Eng* 15:112-13 Ag 1 '16
- Description of Pintsch-Bolz vertical producers. *diags Gas Age* 38:90-1 J1 15 '16
- Gas producer for bituminous fuel. O. C. Berry. *il diags Am Soc M E J* 38:973-8 D '16
- Gas producers with by-product recovery. A. H. Lynn. *il diags Am Soc M E J* 37:253-66 My '15; Same. *Iron Tr R* 57:1123-30+ D 9 '15
- Maintaining gas-producer air-steam ratio; abstract. F. Denk. *Am Soc M E J* 38:87 Ja '16
- Mechanical gas producer. *il diag Power* 44:16-17 J1 4 '16
- Operating costs for municipal gas-engine plant. H. T. Melling. *il Power* 44:13-14 J1 4 '16
- Producer operation and testing. A. A. Potter. *Power* 43:612-13 My 2 '16
- Sawmill waste in suction producer plant. G. S. Wilson. *il diag Power* 43:466-8 Ap 4 '16
- Use of low-grade fuel in Europe. R. H. Fernald. *il diags plan U S Bur Mines Tech Pa* 123:1-35 '15; Excerpt. *Power* 43:126 Ja 25 '16

See also Gas and oil engines

Gas pumps. *See* Pumps, Gas**Gas purification**

- British practice in the condensation, washing and scrubbing of coal gas. W. B. Davidson. *Am Gas Light J* 103:410-12 D 27 '15
- British practice in the purification of coal gas. J. F. Bell. *il Am Gas Light J* 104:39, 42-3 Ja 17 '16
- Instructions for gas company fitters. G. Wehrle. *il diags Gas Age* 38:461-4 N 1 '16
- Notes on purification. W. Bennett. *Am Gas Light J* 104:202-5 Mr 27 '16
- Oxide purification, and the storage of ammoniacal liquor. N. H. Humphrys. *Am Gas Light J* 105:362 N 27 '16
- Purifier oxide and lime-sulphur as a by-product. E. S. Jones. *il Gas Age* 38:410-15 O 16 '16; Same cond. (Area theory for calculating amount of oxide to purify given quantity of gas). *Am Gas Light J* 105:245-7 O 16 '16
- Removal of sulphur from spent oxide. E. J. Murphy. *Am Gas Light J* 105:278 O 30 '16; Same. *Gas Age* 38:522 N 15 '16

See also Gas cleaning; Gas purifiers

Gas purifiers

- Concrete purifiers. *Sci Am S* 82:132 Ag 26 '16

Gas ranges. *See* Gas stoves**Gas rates**

- Analysis of electric cooking. H. O. Swoboda. *Elec R & W Elec'n* 69:671-3 O 14 '16
- Details of Baltimore's gas rate schedules. *Am Gas Light J* 104:138-40 F 28 '16

Gas rates—Continued

Differential rate schedule increases annual gas consumption by industrial consumers in Baltimore 55,578,700 cu. ft. Am Gas Light J 105:156-7 S 4 '16

Is a gas company justified in charging a higher rate for gas served through a prepayment meter? A. R. Manley. Am Gas Light J 104:260-1 Ap 24 '16

Massachusetts commission discusses demand vs. meter rates. Am Gas Light J 104:sup18 Je 19 '16

Rebuilding of municipal gas plant at Bellefontaine, Ohio, considered. Am Gas Light J 105:173 S 11 '16

Springfield rate decision. Am Gas Light J 104:199 Mr 27 '16

Truth about candle power, heat units, high price of inferior gas oil and lower gas bills. Am Gas Light J 104:374-5 Je 12 '16

Value of inactive plant included in determining rates for Richmond, Ind. Am Gas Light J 105:181-2 S 18 '16

Gas regulator pits

Round type regulator pits in San Francisco. D. E. Keppelmann. il Am Gas Light J 105:295 N 6 '16

Gas regulators

Check pressure regulator stops flow of gas in pipes when pressure falls below certain point. diag Am Gas Light J 105:94 Ag 7 '16

Gas retorts

Have the verticals made good? R. N. Buell. il Am Gas Light J 104:97-8 F 14 '16

Horizontal and vertical retorts. Gas Age 38:114 Ag 1 '16

Operating inclined chamber retorts. W. J. O'Rourke. il Am Gas Light J 104:258-9 Ap 24 '16

Silica in retort settings. Sci Am S 82:156 S 2 '16

See also Gas manufacture and works

Gas sampling

Commercial sampling and analysis of producer gas. P. W. Swain. il Am Soc M E J 38:978-82 D '16

Gas-sampling pipes. H. A. Cox. Power 44:360 S 5 '16

Sampling and analyzing flue gases. H: Kreisinger and F. K. Ovtiz. il diags U S Bur Mines Bul 97:8-20, 46-64 '15

Water-cooled sampling tube. E: T. Binns. diags Power 43:302 F 29 '16

Gas standards. See Gas—Standards**Gas storage**

Instructions for gas company fitters. G: Wehrle. il Gas Age 38:602-3 D 1 '16

Gas stoves

Combination fireless cooker and range. il Am Gas Light J 104:205 Mr 27 '16

Evolution of the gas range. Metal Work 85:276 F 25 '16

French types of gas ranges. il Gas Age 38:538-9 N 15 '16

Gas fireless cooking. H. T. Owens. il Am Gas Light J 104:385-8 Je 19 '16

Gas testing

Composition of gas in relation to the performance of the Bunsen burner. R. S. McBride. Am Gas Light J 103:353-5 D 6 '15

Continuous determination of calorific value of gases. F. B. Larkin. Am Gas Light J 104:60 Ja 24 '16

Massachusetts heat value investigation. Gas Age 38:187-8 Ag 15 '16

Standard methods of gas testing. il diags U S Bur Stand Circ 48:1-199 '16

See also Gas analysis; Gas sampling

Gas turbines

Detroit gas turbine. il Am Soc M E J 38:426-7 My '16; Power 44:129 J1 25 '16; Engineer 122:220 S 8 '16; Elec W 68:922 N 4 '16

Exhaust turbine drives generator. diags Automobile 34:499 Mr 16 '16

Gas turbine. Sci Am S 81:47 Ja 15 '16

Gas turbine problem. Sci Am S 82:15 J1 1 '16

Ingenious gas turbine developed in Germany. S. F. Walker. diags Sci Am 114:322+ Mr 25 '16

Gas washers

Gas washer patented, by Thomas McDonald. diag Met & Chem Eng 14:340 Mr 15 '16

Gas washing. See Gas cleaning

Gas water heaters

Circulating tank water heater. E. S. Stack. diags Am Gas Light J 104:234-5 Ap 10 '16

Domestic water heating by electricity versus gas; comparative operating costs. R. L. Webb. Elec W 67:1464-5 Je 24 '16; Same. Gas Age 38:186 Ag 15 '16

Gas water heating, its origin and development. E. S. Stack. diags Dom Eng 75:5-6, 69-70, 134-5, 198-9, 294-5, 360; 76:218-20; 77:179-80 Ap 1, 15, 29, My 13, Je 3, 17, Ag 12, N 11 '16 (to be cont)

Geyser hot water heater. il Dom Eng 74:149 Ja 29 '16

Intensified selling applied to water heaters. A. A. Higgins. Am Gas Light J 104:182-3 Mr 20 '16

Recent water-heater sales campaigns. il Gas Age 38:241-3 S 1 '16

Selecting gas water heater for work. E. S. Stack. Metal Work 85:351 Mr 10 '16

Water heater systems; automatic vs. storage. E. S. Stack. diags Am Gas Light J 104:353-5 Je 5 '16

Gas wells. See Gas, Natural

Gas works. See Gas manufacture and works

Gases

Action of gases on iron and steel. Sci Am S 81:160 Mr 4 '16

Distribution of gaseous matter. T. W: Schaeffer. Sci Am S 82:322-3 N 18 '16

Gas lighter than hydrogen? A. C. Staley. Sci Am 113:539 D 18 '15

Molecular weights of gases by an evaporation method. H. L. Trumbull. Am Chem Soc J 37:2662-7 D '15

Noble gases. H: P. Talbot. Sci Am S 81:378-9 Je 10 '16

Supposed effect of the form of container upon the density of a gas. W: A. Noyes and L. C. Johnson. diag Am Chem Soc J 38:1017-21 My '16

See also Acetylene; Aerodynamics; Air; Blast furnace gas; Chemistry; Chlorine; Coke-oven gas; Electric discharges thru gases; Firedamp; Flue gas; Gas; Gas and oil engines; Hydrogen; Inflammable mixtures; Ionization; Mine gases; Nitrogen; Oxygen; Ozone; Sewer gas; Thermalene; Vapor pressure

Gases, Asphyxiating

Military use of sabadilla in the manufacture of tear-producing gases. Sci Am 115:55 J1 15 '16

Rôle of chemistry in the war. A. S. Cushman. J Fr Inst 181:186-9 F '16

Suffocating gases and their antidotes. Sci Am S 82:36 J1 15 '16

See also Carbon monoxide

Gases, Kinetic theory of

Apparatus for demonstrating the motion of gas molecules. il Sci Am 114:130 Ja 29 '16

Gasholders

New 1,000,000 cubic foot holder at Flushing, L. I. il Am Gas Light J 104:71 Ja 31 '16

Re-leveling a gas holder. A. R. Schiller. il Am Gas Light J 104:179-81 Mr 20 '16; Same cond. Eng & Contr 45:465-6 My 24 '16

Gaskets

Molding gaskets for feed valves. E. A. Murray. diag Ry Mech Eng 90:320 Je '16

Removing rubber gaskets from lubricators. diags Mach 22:334 D '15

Gasoline

Bureau of mines estimates of cost of making gasoline by the Rittman process. Am Gas Light J 104:405 Je 26 '16

Bureau of standards aims at definition of gasoline and consumers' protection. Automobile 35:692 O 26 '16

California gasoline industry. W. R. Hamilton. Am Inst Min E Bul 114:1073-7 Je '16

Catalysis in the formation of gasoline from kerosene. G. Egloff and R. J. Moore. Met & Chem Eng 15:67-9 J1 15 '16

Coal-tar colors, and the Hall process of manufacturing gasoline from gas oil. C. F. Chandler. J Ind & Eng Chem 8:72-5 Ja '16

Gasoline—Continued

- Construction and operation of a single-tube cracking furnace for making gasoline. C. P. Bowie. *il* 10 pls U S Bur Mines Tech Pa 161:1-15 '16; Abstract. *Am Gas Light J* 105: 106-7 Ag 14 '16
- Cracking of paraffin base oils; the time factor and the temperature factor under pressure. G. Egloff, T. Twomey and R. J. Moore. *Met & Chem Eng* 15:523-9 N 1 '16
- Does it pay to handle gasoline? C. P. Shattuck. *il* Horseless Age 38:158-9+ S 1 '16
- Effect of aluminium chloride upon a naphthene base oil in the formation of gasoline, unsaturated and aromatic hydrocarbons. G. Egloff and R. J. Moore. *Met & Chem Eng* 15: 340-50 S 15 '16
- Estimated cost of making gasoline by the Rittman process. *Met & Chem Eng* 14:678 Je 15 '16
- Experiments on the production of gasoline from hydrocarbon oils of high boiling points. E. L. Davies. *diags J Ind & Eng Chem* 8:114-18 F '16
- Extraction of gasoline from natural gas by absorption methods. G. A. Burrell, P. M. Biddison, and G. G. Oberfell. *diags Met & Chem Eng* 14:651-60 Je 1 '16
- Future of the country's gasoline output. A. E. Outerbridge, jr. *Iron Age* 97:252-3 Ja 27 '16
- Gas plant for country home. *diag Metal Work* 85:195 F 4 '16
- Gasoline and the government. V. H. Manning. *Horseless Age* 38:266-7+ O 15 '16
- Gasoline from heavier petroleum oils. C. Ellis and A. A. Wells. *J Ind & Eng Chem* 7:1029-33 D '15
- Gasoline from natural gas. *Sci Am S* 81:187 Mr 18 '16
- Gasoline from natural gas. B. N. Glick. *Automobile* 35:777-80, 896-7 N 2, 23 '16
- Gasoline from shale. *Eng & Min J* 101:530 Mr 18 '16
- Gasoline from synthetic crude oil. W. O. Snelling. *Am Inst Min E Bul* 100:695-704 Ap '15; Same. *Sci Am S* 79:189-91 Mr 20 '15; Same cond. *Sci Am* 112:266-7 Mr 20 '15; Abstract. *Met & Chem Eng* 13:180-1 Mr '15; Discussion. *Am Inst Min E Bul* 101:1163-9; 109:173-6 My '15, Ja '16
- Gasoline situation. *Sci Am* 114:410 Ap 15 '16
- Gravity does not mean power. V. H. Manning. *Automobile* 35:609-10 O 12 '16
- Hope in cracking process. W. F. Rittman. *Automobile* 34:558-9 Mr 23 '16
- Improvement of high boiling petroleum oils, and the manufacture of gasoline as a by-product therefrom, by the action of aluminium chloride. A. M. McAfee. *J Ind & Eng Chem* 7:737-41 S '15; Same. *Met & Chem Eng* 13:592-7 S 15 '15; Same. *Sci Am S* 81: 50-1, 74 Ja 22-29 '16; Same abr. *Am Gas Light J* 103:293-5+ N 8 '15; Abstract. *Eng N* 74:532 S 16 '15
- Inflammability of mixtures of gasoline vapor and air. G. A. Burrell and H. T. Boyd. *diags U S Bur Mines Tech Pa* 115:1-16 '15; Same cond. *J Ind & Eng Chem* 7:414-17 My '15; Summary. *Met & Chem Eng* 13:802 N 1 '15; Summary. *Power* 42:781-2 D 7 '15
- Low-test vs. high-test gasoline. *Automobile* 34:818 My 4 '16
- Manufacture of gasoline and benzene-toluene from petroleum and other hydrocarbons. W. F. Rittman and others. *bibliog il diags U S Bur Mines Bul* 114:1-268 '16; Abstract. *Met & Chem Eng* 14:269-78 Mr 1 '16; Abstract. *J Ind & Eng Chem* 8:351-61 Ap '16
- Motor fuels; situation in England, and on the continent. V. B. Lewes. *Am Gas Light J* 103:165-7, 170-1, 178-81 S 13-20 '15; Excerpts. *Sci Am S* 80:374-5 D 11 '15
- No shortage in crude petroleum; report of Federal trade commission. *Automobile* 34: 696+ Ap 13 '16
- Problem of gasoline supply. *il Sci Am* 114: 466+ My 6 '16
- Reducing a gasoline fire hazard. *Elec Ry J* 47: 84 Ja 8 '16
- Solving the gasoline problem. *Horseless Age* 37:263+ Ap 1 '16
- Thermal and pressure decomposition of a naphthene base oil in the gas phase. G. Egloff, T. J. Twomey and R. J. Moore. *Met & Chem Eng* 15:387-92 O 1 '16

Bibliography

- Production of gasoline and aromatic hydrocarbons from petroleum. M. S. Howard. *U S Bur Mines Bul* 114:235-55 '16

Specifications

- Proposed gasoline specifications of Bureau of mines. *Met & Chem Eng* 15:557-9 N 15 '16

Storage

See Oil storage

Taxation

- Please, Mr. President, why pick on us? *il* Horseless Age 36:524-5 D 15 '15
- Tax coal, wood, electricity, oats, hay—if you tax gasoline. *Automobile* 33:1027 D 2 '15

Gasoline, Substitutes for

- Gasoline substitute. M. R. Hutchison. *Power* 44:155 Ag 1 '16
- Gasoline substitutes in Great Britain. *Dom Eng* 77:151-2 N 4 '16
- Mixed fuels better than gasoline. *Sci Am* 114: 179 F 12 '16
- See also Alcohol as fuel*

Gasoline engines. *See Gas and oil engines*

Gasoline handling

- Electrified chammois funnels. *Automobile* 34:421 Mr 2 '16
- Filtering gasoline through chammois skin. *Metal Work* 86:519 O 27 '16
- Garage business—buildings, equipment, methods. P. M. Heldt. *il diags Horseless Age* 37: 348-9+, 394-6, 432-3, 474-6 My 1-Je 15 '16
- Garage equipment for gasoline, oil and grease. *il* Horseless Age 37:218-20 Mr 15 '16
- Gasoline, chammois and sparks. A. W. Ewell. *diag Horseless Age* 37:433+ Je 1 '16
- Gasoline plus chammois gives electricity. *Automobile* 33:1098 D 16 '15
- Hazards in handling gasoline. G. A. Burrell. *U S Bur Mines Tech Pa* 127:1-11 '15; Abstract. *Power* 43:126-7 Ja 25 '16; Excerpt (Inflammability of gasoline and of gasoline vapor). *Sci Am S* 81:203 Mr 25 '16
- How pouring gas creates electricity. *Automobile* 34:385 F 24 '16

Gasoline in sewers

- Detroit sewer wrecked by gasoline explosion. *il map Eng N* 75:577 Mr 23 '16
- Leaking gasoline caused Detroit sewer explosion. A. L. Sears. *il map Eng Rec* 73:426 Mr 25 '16
- Quantity of gasoline necessary to produce explosive conditions in sewers. G. A. Burrell and H. T. Boyd. *U S Bur Mines Tech Pa* 117:1-17 '16; Excerpts. *Eng & Contr* 46:240-1 S 13 '16

Gasoline pumps

- Faulty installation of gasoline pumps. *Metal Work* 86:414-15 S 29 '16
- Gasoline pumps are inaccurate. *Automobile* 35:648 O 19 '16
- Investigation of gasoline pumps. *Horseless Age* 38:sup15 Jl 15 '16
- Liquid-measuring pumps. F. J. Schlink. *il diags U S Bur Stand Tech Pa* 81:1-27 '16; Abstract. *Am Soc M E J* 38:935-6 N '16

Gasmeters

- Gasometer for exhaust steam. *diag plan Power* 43:658 My 9 '16

Gates

- Automatic drainage gates lessen need of pumping. *il Eng Rec* 74:47 Jl 8 '16
- Cumulative counterweights feature spillway crest. J. Wright. *diag Eng Rec* 74:286 S 2 '16
- Cylinder drops for irrigation ditches. *diags Eng N* 75:1144 Je 15 '16
- Famous Yaddin development nearing completion. *diags Eng N* 76:921 N 16 '16
- Head gate details, Sacramento valley irrigation co. P. A. Welty. *il diags Eng & Contr* 44:422 D 1 '15
- Head-gate opening and forebay-level indicators. *diags Elec W* 68:1007-8 N 18 '16
- Swiss automatic gates will guard Wissota dam. *Eng Rec* 73:137-8 Ja 29 '16
- Throttling gates save 300,000 gal. of water daily. C. M. Saville. *Eng Rec* 73:184 F 5 '16
- Twenty-foot depth of driftwood buckles automatic gates. *Eng Rec* 73:44 Ja 8 '16

Gates—*Continued*

Two relief gates considered for handling cross-canal flood waters. J. Jenson. *diags Eng Rec* 73:22-3 Ja 1 '16

See also Taintor gates

Gateways

Design for fence and gateway. *il Bldg Age* 38: 53 Ja '16

Gauges. See Gages**Gear cutting**

Broaching method of manufacturing spur gears. *diag Mach* 22:827 My '16
Calculating change-gears for hobbing spiral gears. G. Allington. *Mach* 22:884-5 Je '16
Cutting a semi-steel gear on a milling machine. *diag Mach* 23:163-4 O '16
Electricity in the manufacture of gears. *il Elec R & W Elec'n* 68:146-50 Ja 22 '16
Gear teeth without interference or undercutting. J. Edgar. *diags Mach* 22:391-5 Ja '16
Milling clutch teeth on stem-gears. *il diag Mach* 22:375 Ja '16
New system of cutting gears. *diags Sci Am S* 81:101 F 12 '16

Gear cutting machines

Gleason roughing machine for bevel pinions. *il Iron Age* 98:992 N 2 '16
Herringbone gear machine. *il Iron Age* 98: 349-50 Ag 17 '16
Hobbing high prime-number spur-gears without special mechanism; abstract. W. O. Wynne. *diag Am Soc M E J* 38:671-2 Ag '16
Largest herringbone gear hobbing machine. *il Mach* 22:396-9 Ja '16
Mesta develops new gear planer. *il Iron Tr R* 59:825-6 O 26 '16
Newark worm-wheel segment hobbing machine. *il diags Mach* 22:442-3+ Ja '16
Newton milling machine for cutting worms. *il Iron Age* 97:659-60 Mr 16 '16; *Iron Tr R* 58: 764 Ap 6 '16
Planing helical surfaces. E. W. Miller. *il diags Mach* 22:560-1 Mr '16

Gearing

Bakelite-Micarta-D gears and pinions. *il Elec R & W Elec'n* 69:693-4 O 14 '16
Calculating change-gears for fractional threads. *Mach* 22:989 Jl '16
Change-gears for thread cutting. *diag Mach* 22:988 Jl '16
Design of back-gears. M. R. Bowerman. *diags Mach* 22:584-5 Mr '16
Electricity in the manufacture of gears. *il Elec R & W Elec'n* 68:752-4 Ap 29 '16
Four-gear epicyclic trains. M. Terry. *diags Mach* 22:588 Mr '16
Gear material eliminates noise. *il Iron Tr R* 59:903 N 2 '16
Gear testing machine. *il Mach* 23:180-1 O '16
Ingenious electric drive gear adapted for light railway work. *il diag Sci Am S* 81:76 Ja 29 '16
Institution of mechanical engineers; discussion on spur gearing. *Engineer* 121:460-1 Je 2 '16
Precision gear center gage. *diags Mach* 23:155 O '16
Spur-gearing. D. Adamson. *diags Engineer* 121:491-3, 508-9 Je 9-16 '16; *Abstract. Am Soc M E J* 38:597-8 Jl '16
Turbo-gear power transmission. *il Eng M* 51: sup8 S '16

See also Automobiles—Gearing; Chain gear; Gear cutting; Geneva movement; Motor trucks—Gearing; Power transmission; Valves

Gearing, Bevel

Bevel gear pattern gage. G. Macomber. *diag Mach* 22:334-5 D '15
Distribution of tooth pressure in bevel gears. *Horseless Age* 36:457 N 15 '15
Laying out skew bevel gears. R. Trautschold. *diags Mach* 23:32-6 S '16; *Abstract. Am Soc M E J* 38:835 O '16
Parallel-depth bevel gears; abstract. W. C. Glass. *diags Am Soc M E J* 38:934-5 N '16
Spiral bevel calculations. A. L. Nelson. *diags Automobile* 34:1003-8 Je 8 '16

Gearing, Helical

Planing helical surfaces. E. W. Miller. *il diags Mach* 22:560-1 Mr '16

Gearing, Herringbone

Flexible magnetic coupling built like an accordion. *il Sci Am* 115:442+ N 11 '16

Largest herringbone gear hobbing machine. *il Mach* 22:396-9 Ja '16

Gearing, Spiral

Calculating change-gears for hobbing spiral gears. G. Allington. *Mach* 22:884-5 Je '16

Gearing, Synchronous. See Synchronous gearing**Gearing, Worm**

Manufacture of motor truck worm drives. F. L. Prentiss. *il Iron Age* 97:1380-1 Je 8 '16
Worm gearing stuck. E. C. Farham. *Power* 44:557 N 7 '16

Gears. See Gearing**Geist, Ellsworth**

Exhibit of the typographic work of Ellsworth Geist. *il Inland Ptr* 57:496a-496h Jl '16

Gelatin

Chemical control of gelatine manufacture. J. R. Powell. *J Ind & Eng Chem* 8:932-3 O '16
Gelatine as a food for the people. E. Homberger. *Sci Am S* 81:167 Mr 11 '16

Gelatin, Substitutes for

Substitute for gelatin found in the Philippines. *Sci Am* 114:641 Je 17 '16

Gems

How to value gems. E. Freund. *Sci Am S* 81:334-6 My 20 '16

See also Diamonds; Precious stones

General electric company

General Electric lecture service. J. Liston. *il Gen Elec R* 19:236-40 Mr '16
Present conditions in the electrical industry. E. W. Rice, jr. *Gen Elec R* 19:1050-4 D '16; Same cond. *Elec W* 68:560 S 16 '16; Same cond. *Elec R & W Elec'n* 69:548-9 S 23 '16

Generation, Spontaneous

Modern conceptions of spontaneous generation. G. B. Reed. *Sci Am S* 82:334-5 N 18 '16

Generators, Electric. See Dynamos**Geneva movement**

Improvements on intermittent movement of Geneva wheel. F. P. Ampudia. *diags Mach* 22:1078 Ag '16

Geodesy

See also Latitude; Triangulation

Geographical research

Importance of geographical research. H. G. Lyons. *Sci Am S* 81:146-7, 170 Mr 4-11 '16

Geography. See Antarctic exploration; Arctic exploration; Maps**Geography and history**

Science and the war. A. Gradenwitz. *Sci Am S* 80:381 D 11 '15

Geological survey. See United States—Geological survey**Geologists**

Railway geological department. J. H. Watkins. *Eng & Min J* 102:931-3 N 25 '16
Should a new degree be created for proficiency in geology? symposium. *Econ Geol* 11:73-86, 185-93, 290-2 Ja-Apr '16

Geologists, State. See State geologists**Geology**

Diastrophic theory; study of the mechanics of oil and gas accumulation in commercial deposits. M. R. Daly. *diags Am Inst Min E Bul* 115:1137-57 Jl '16; Discussion. 120:2204-11 D '16

Economic geology in 1915. A. Knopf. *Eng & Min J* 101:102-4 Ja 8 '16

Nomographic solutions of certain stratigraphic measurements. H. S. Palmer. *diags Econ Geol* 11:14-29 Ja '16

Relations of the chemical composition of petroleum to its genesis and geologic occurrence. C. F. Mabery. *Econ Geol* 11:511-27 Ag '16

Work of N. H. Winchell in glacial geology and archaeology. W. Upham. *Econ Geol* 11: 63-72 Ja '16

See also Clay; Coal; Copper ores; Earth; Faults (geology); Gas, Natural; Glacial period; Glaciers; Landslides; Metals; Mines and mineral resources; Ore deposits; Paleontology; Petroleum; Phosphates; Rocks; Sedimentation and deposition; Soils; Volcanoes

Bibliography

Recent literature on economic geology. S. Paige. *Econ Geol* 10:682-90 N '15

Geology—Continued

Arizona

Garnet deposits on the Navajo reservation, Arizona and Utah. H. E. Gregory. map Econ Geol 11:223-30 Ap '16

Geology and ore deposits of Mohave county, Arizona. F. C. Schrader. il maps Am Inst Min E Bul 119:1935-67 N '16

Geology of the Warren mining district. Y. S. Bonillas, J. B. Tenney and L. Feuchère. il diags map Am Inst Min E Bul 117:1397-1465 S '16; Discussion. 120:2164-8 D '16

Mineralization at Clifton-Morenci. L. E. Reber, jr. pls map Econ Geol 11:528-73 Ag '16

Water problem at the Old Dominion mine. P. G. Beckett. Am Inst Min E Bul 112:680-3 Ap '16

Australia

Petrography of the Mount Morgan mine, Queensland. W. E. Gaby. il map Am Inst Min E Bul 117:1725-44 S '16

Burma

Geology of the Bawdwin mines, Burma. M. H. Coxman. il maps Am Inst Min E Bul 120:2119-43 D '16

Canada

Gold lake district, Manitoba, Canada. G. A. Packard. map Eng & Min J 101:339-40 F 19 '16

Chile

Mine of Chile exploration co., Chuquicamata, Chile. P. Yeatman. il Eng & Min J 101:307-14 F 12 '16

Colorado

Occurrence, geology and economic value of the pitchblende deposits of Gilpin county, Colorado. P. R. Alsdorf. Econ Geol 11:266-75 Ap '16; Discussion. E. S. Bastin. Econ Geol 11:681-5 O '16

Cuba

Genesis and relations of the Daiquiri and Firmeza iron-ore deposits, Cuba. J. T. Singewald, jr., and B. L. Miller. Am Inst Min E Bul 111:671-8 Mr '16

Geology of the iron-ore deposits of the Firmeza district, Oriente Province. M. Roesler. bibliog il map Am Inst Min E Bul 118:1789-1839 O '16

Iron deposits of Daiquiri, Cuba. W. Lindgren and C. P. Ross. bibliog il Am Inst Min E Bul 106:2171-90 O '15; Discussion. 113:886-93 My '16

India

Plains of northern India and their relationship to the Himalaya mountains. S. Burrard. Sci Am S 82:170-1 S 9 '16

Mexico

Effect of igneous intrusions on the accumulation of oil in the Tampico-Tuxpam region, Mexico. E. De Golyer. Econ Geol 10:651-62 N '15

Mining and milling practice at Santa Gertrudis. H. Rose. il Am Inst Min E Bul 116:1295-8 Ag '16; Same. Eng & Min J 102:371-2 Ag 26 '16

Minnesota

Recent geologic developments on the Mesabi iron range, Minnesota. J. F. Wolff. il maps Am Inst Min E Bul 118:1763-87 O '16

Nevada

Geology and ore-deposition at Tonopah, Nevada. J. E. Spurr. il pls Econ Geol 10:713-69 D '15

Wood tin in the tertiary rhyolites of northern Nevada. A. Knopf. il Econ Geol 11:652-61 O '16

New South Wales

Observations on the geology of the Broken Hill lode, New South Wales. E. S. Moore. il Econ Geol 11:327-48 Je '16

New York

Mining Albany molding sand. D. H. Newland. il map Foundry 44:107-10 Mr '16

Zinc mining district near Edwards. N. Y. D. H. Newland. il map Econ Geol 11:623-44 O '16; Abstract. Eng & Min J 102:938-9 N 25 '16

North America

Gold and silver deposits in North and South America. W. Lindgren. maps Am Inst Min E Bul 112:721-46 Ap '16

Oklahoma

Influence of the movement in shales on the area of oil production. R. A. Conkling. Am Inst Min E Bul 119:139-72 N '16

Occurrence of the older beds in structural depressions. D. Hager. diag Econ Geol 11:276-8 Ap '16

Ontario

Geological explorations at Beaver and Temiskaming. diag Eng & Min J 102:466 S 9 '16

Ore genesis and contact metamorphism at the Long Lake zinc mine, Ontario. W. L. Uglow. il Econ Geol 11:231-45 Ap '16

Relation of the titaniferous magnetite ores of Glamorgan township, Haliburton county, Ontario, to the associated scapolitic gabbros. W. G. Foye. il map Econ Geol 11:562-80 O '16

Panama

Some engineering problems of the Panama canal in their relation to geology and topography. D. F. MacDonald. il diags map U S Bur Mines Bul 86:1-88 '16

Pennsylvania

Pennsylvania fire clay. L. C. Morganroth. Am Inst Min E Bul 110:475-81 F '16; Discussion. 113:906-7 My '16

Peru

Prominent mines of Junin, Peru. J. E. Singewald and B. L. Miller. il Eng & Min J 102:583-7 S 30 '16

Philippine Islands

Occurrence of petroleum in the Philippines. W. E. Pratt. map Econ Geol 11:246-65 Ap '16

Russia

Pyritic copper deposits of Kyshtim, Russia. A. W. Stickney. bibliog pls Econ Geol 10:593-633 N '15

South America

Gold and silver deposits in North and South America. W. Lindgren. maps Am Inst Min E Bul 112:721-46 Ap '16

South Carolina

Walhalla district. S. C. F. P. Peterson and F. H. Flynn. il Eng & Min J 101:379-82 F 26 '16

South Dakota

Black Hills gold-bearing iron-quartz-tremolite belt. B. M. O'Harra. il map Eng & Min J 101:770-3 Ap 29 '16

Texas

Copper deposits in the "Red Beds" of Texas. L. M. Richard. Econ Geol 10:634-50 N '15

United States

Feldspars of the New England and north Appalachian states. A. S. Watts. il diags maps U S Bur Mines Bul 92:1-173 '16

Petroleum resources of the United States. R. Arnold. Econ Geol 10:695-712 D '15

Utah

Garnet deposits on the Navajo reservation, Arizona and Utah. H. E. Gregory. map Econ Geol 11:223-30 Ap '16

Relation of ore deposits to different types of intrusive bodies in Utah. B. S. Butler. map Econ Geol 10:101-22 F '15; Discussion. 10:471-2; 11:284-8 Jl '15, Ap '16

Virginia

Zircon-bearing pegmatites in Virginia. T. L. Watson. map Am Inst Min E Bul 115:1237-43 Jl '16

West Virginia

Possibility of deep sand oil and gas in the Appalachian geo-syncline of West Virginia. D. B. Reger. map Am Inst Min E Bul 117:1709-24 S '16

Geometrical drawing

Geometry of wide-bladed screw propeller. N. A. Graveson. diags Int Marine Eng 21:242-4 My '16

Geometrical drawing—Continued

- Laying out a curve in isometric projection. diags Mach 23:64 S '16
- Little geometry for the carpenter. W. S. Wilkin. diags Bldg Age 38:64-6 My '16
- Problems in geometrical drawing. W. S. Wilkin. diags Bldg Age 38:41-4 Jl '16
- Proportional drawing. L. A. Brown. diags Sci Am S 82:361-7 D 2 '16

Geometry

See also Geometrical drawing; Straight line motion; Trisection of angles

Gerard, Eric, 1856-1916

- Sketch. Power 43:568 Ap 18 '16; Am Inst E E Pro 35:118-19 My '16

German Bunsen society for applied physical chemistry

- 22d general meeting, Berlin, Oct. 17-18. Met & Chem Eng 13:965-7 D 15 '15

German silver

- Electrical resistance of some heat-treated copper-zinc-nickel alloys. F. C. Thompson. Inst E E J 54:222-4 Ja 15 '16
- Nickel-silver. Sci Am S 82:164 S 9 '16

Germanium

- Occurrence of germanium in zinc materials. G. H. Buchanan. J Ind & Eng Chem 8:585-6 Jl '16; Excerpts. Eng & Min J 102:335 Ag 19 '16

Germany**Army**

- Campaigning in the snow. il Sci Am S 82:37 Jl 15 '16
- Industrial lessons from the German war machine. C. E. Knoepfel. Eng M 50:666-73, 853-9 F-Mr '16
- Keeping an army supplied; how fighting men of Germany are victualled and munitioned. A. Gradenwitz. il Sci Am 114:152 F 5 '16

Commerce

- Digging in for the coming trade war. L. R. Freeman. Eng M 51:493-500 Jl '16

Economic policy

- Institution of mechanical engineers; president's address. W. C. Unwin. Engineer 122: 376 O 27 '16

Food supply

- Food supply of the German people. Sci Am S 81:303-4 My 6 '16

Industries and resources

- Copper in Germany. G. Hirsch. Eng & Min J 100:1056-8 D 25 '15
- Effect of war on gas business in Germany has been to impress upon the country the great economic importance of the industry. M. Hase. Am Gas Light J 105:171 S 11 '16
- German cement cartels during the war. Concrete 9:sup4-6 Jl '16
- German commercial preparedness for peace. J. Armstrong. Sci Am 114:124+ Ja 29 '16
- Germany's example in preparedness. G. W. Perkins. Sci Am 114:145 F 5 '16
- Germany's industries. H. G. Seltzer. Textile World 51:3399+ Jl 29 '16
- Germany's manganese supply. Iron Age 97: 1005 Ap 27 '16
- Industrial lessons from the German war machine. C. E. Knoepfel. Eng M 50:853-9; 51: 58-65, 167-76 Mr-May '16
- Power situation in Germany and Austria during the war. Power 43:831-3 Je 13 '16; Same. Sci Am S 82:15 Jl 1 '16
- Toronto shows low-priced manufactures of German competitors. Iron Age 98:1063 N 9 '16
- What of German industrial conditions. C. A. Tupper. il Iron Age 97:243-6 Ja 27 '16
- See also Coal mines and mining—Germany; Germany—Food supply

Navy

- German fleet in the North Sea. Sci Am 114: 320 Mr 25 '16
- Why America lost second place. il Sci Am 114:555 My 27 '16

Railroads

See Railroads—Germany

Germination

- New method of germinating acorns for forest planting. J. W. Harshberger. il Am For 22: 687-8 N '16
- Stimulating germination in old seeds. Sci Am S 82:196-7 S 23 '16

Gilsonite

- Gilsonite and grahamite; the result of the metamorphism of petroleum under a particular environment. C. Richardson. J Ind & Eng Chem 8:493-4 Je '16; Same. Sci Am S 82:310 N 11 '16

Gimp machines

- Various novelties made on gimp machines. il Textile World 51:4533+ O 21 '16

Gin poles

- Easily made A-frame for handling large line poles. diag Elec W 67:547 Mr 4 '16
- Erecting steel transmission towers with gin-pole. L. R. Allison. diags Eng N 76:752-3 O 19 '16
- Light, strong gin pole built up of one-inch lumber. M. J. Welch. il Eng Rec 73:400 Mr 18 '16
- Pole-top gin for line construction. il Elec R & W Elec N 68:1045 Je 3 '16
- Use of gins and shears. il Eng & Min J 102: 876-7 N 11 '16

Ginger

- Zingiberol—a new sesquiterpene alcohol occurring in the essential oil of ginger. B. T. Brooks. Am Chem Soc J 38:430-2 F '16

Girders

- Beams without lateral support. R. Fleming. Eng N 75:648-9 Ap 6 '16
- Beams without lateral support; relations of formulas. H. Kercher. Eng N 75:860-1 My 4 '16
- Bending moment in continuous reinforced-concrete beams. R. J. Roark. diags Eng N 75:354-5 F 24 '16
- Bent I-beams hung over fire straighten of own weight. il Eng Rec 74:362 S 16 '16
- Broken track stringers in bascule bridge lead to proposed new floor design. F. H. Avery. il diags Eng Rec 73:14-16 Ja 1 '16
- Cantilevers carry building columns above tunnel; foundations of Gazette-telegraph building, Pittsburgh. diags Eng Rec 74:322 S 9 '16
- Concrete equivalents for steel beams. G. A. Merrill. Eng & Contr 46:280 S 27 '16
- Concrete estimating facilitated by table. Eng Rec 73:421 Mr 25 '16
- Cutting a pier in two to make it stronger. S. F. Holtzman; G. M. Williams. diags Eng N 75:380-1 F 24 '16
- Deck trusses changed for 100-foot girders between trains. A. Hall. Eng Rec 74:512 O 21 '16
- Deep concrete girder poured in three lifts. L. Muhlhausen. diag Eng N 76:506-7 S 14 '16
- Design of beams, girders and trusses. E. McCullough. diags Bldg Age 36:27-8 Jl; 33-4 Ag; 29-30 S; 37-9 O; 37-9 N; 27-9 D '14; 37:39-41 Ja; 31-3 F; 27-8 Mr; 49-50 Ap; 49-50 My; 47-8 Je; 45-6 Jl; 27-8 Ag; 29-30 S; 37-8 N; 51-2 D '15, 61-2 Ja; 53-4 F; 53-4 Mr '16
- Diagrams for the design of reinforced concrete T beams. M. A. Drucker. Eng & Contr 45:579-80 Je 28 '16
- Economic design of pile foundations. C. E. Anderson. diag Eng & Contr 46:285-7 S 27 '16
- Economy of continuity in reinforced concrete. R. J. Roark. Eng N 75:790-2 Ap 27 '16
- Elastic curves and influence lines. I. Duberstein. Eng Rec 73:292 F 26 '16
- Elastic curves and influence lines simplify analysis of beams. J. P. J. Williams. Eng Rec 72:762-5 D 18 '15
- Erecting long plate girders by tower traveler. il Eng N 75:370-2 F 24 '16
- Flange makeup diagrams for heavy plate girders. H. J. Finebaum. Eng N 75:1142-3 Je 15 '16
- Girder bridge replaces truss over fast express tracks. il diags Eng Rec 73:383-4 Mr 18 '16
- Handling long girders. J. C. Worrell. il Eng & Contr 46:34 Jl 26 '16
- Heavy concrete beams used in rebuilding a theater. L. F. Smith. il plan Eng N 75:834-5 My 4 '16

Girders--Continued

- How to find the maximum bending moment of a beam. *Mach* 22:1086 Ag '16
- Is a part stronger than the whole? G. E. Strehan. *diags Eng N* 75:284-5 F 10 '16
- Manufacture and sale of reinforced concrete floor beams. *il diags Concrete* 9:157-9 N '16
- Moment diagram and its relation to the reinforcement of a concrete beam; abstract. S. C. Hollister. *Am Soc M E J* 38:353 Ap '16
- New formulas and diagrams give deflections of beams under any loading. C. A. Ellis. *Eng Rec* 73:84-5 Ja 15 '16
- New formulas for weights of girders and trusses. A. G. Hayden. *Eng N* 75:422-3 Mr 2 '16
- Plate girders of record weight in Worcester viaduct. F. B. Freeman. *il diags Eng N* 75:1065-9 Je 8 '16
- Record-breaking plate girders for Nickel Plate R. R. *il diags Eng N* 74:1105-7 D 9 '16
- Setting a heavy elevated-railway girder. *il Eng N* 75:757 Ap 20 '16
- Shear cracks or tension failure? O. H. Basquin. *diag Eng Rec* 73:156 Ja 29 '16
- Slide rules for reinforced concrete design. E. F. Rockwood. 2 pls *Boston Soc C E J* 3:207 My '16
- Spacing of shear steel in concrete beams. R. S. Beard. *Eng N* 75:996-7 My 25 '16
- Special methods of reinforced concrete design. M. J. Lorente. *diags Boston Soc C E J* 2:265-79 S '15; Discussion. 2:280-2; 3:29-35 S '15, Ja '16
- Special steel and timber erection tower places heavy plate girders. *il Eng Rec* 73:354-5 Mr 11 '16
- Steel girders and concrete struts for foundations. Bell parkway building, Philadelphia. *diags Eng Rec* 74:259-60 Ag 26 '16
- Stirrup spacing diagrams. F. S. Bailey. *Eng N* 76:361-2 O 12 '16
- Straightening 70-ft. I-beams bent by flood. *il diag Eng N* 76:385-6 Ag 31 '16
- Strength of webs of I-beams and girders. H. F. Moore and W. M. Wilson. *il diags Ill U Eng Exp Sta Bul* 86:1-50 '16; Conclusions. *Eng & Contr* 46:83 Jl 26 '16; *Eng Rec* 74:179 Ag 5 '16
- Stresses in concrete beams and slabs. *diags Concrete* 8:138-9 Mr '16
- Subway columns and girders designed to support future high office building. *diags Eng Rec* 74:113-14 Jl 22 '16
- Swinging cargo hoist beam for New York harbor pier shed. *diags Eng & Contr* 46:79 Jl 26 '16; *Eng Rec* 73:794 Je 17 '16
- Tables facilitate accuracy in timber beam design. R. C. Hardman. *Eng Rec* 73:138-9 Ja 29 '16
- Temperature stresses in a series of concrete girder spans under different conditions of end support. T. D. Gregg. *diags Eng & Contr* 45:333-4 Ap 5 '16
- Web strength of I-beams and girders. H. F. Moore. *il diags W Soc E J* 21:209-25; Discussion. 225-31 Mr '16
- See also* Bridges; Building; Roofs; Strains and stresses; Trusses
- Giulio Romano.** 1492-1546
Portrait. *Brickb* 25:108a My '16
- Glacial period**
Glacial epoch. T. P. Roberts. *il diags maps Eng Soc W Pa* 32:565-96; Discussion. 596-611 O '16
- Work of N. H. Winchell in glacial geology and archaeology. W. Upham. *Econ Geol* 11:63-72 Ja '16
- Glacier national park**
Description. M. Daniels. *il Am For* 22:397-404 Jl '16
- Glaciers**
American glaciers. C. Ellis. *il Sci Am S* 81:280-1 Ap 29 '16
- See also* Glacial period; Icebergs
- Glands, Ductless**
Abderhalden's new studies of the ductless glands. *Sci Am* 115:123 Ag 5 '16
- Glare**
Automobile headlights. *bibliog Illum Eng Soc* 11:29-35 no 1 '16
- Determination of headlight glare. J. B. Replogie. *Automobile* 35:890-2 N 23 '16
- Effect of glare on vision. *Illum Eng Soc* 10:1000-14 no 9 '15
- General report on glare. *Illum Eng Soc* 10:987-99 no 9 '15; Abstract (Analysis of glare). *Eng M* 51:278-9 My '16
- Glare in street lighting. *Illum Eng Soc* 11:518-24 no 4 '16
- Glaring differences in anti-glare laws. *Horseless Age* 37:146-7 F 15 '16
- Interior illumination. *Illum Eng Soc* 11:36-9 no 1 '16
- What good lighting really is; automobile lighting analyzed from the lighting viewpoint. E. L. Clark. *diags plan Automobile* 34:409-15 Mr 2 '16
- Yellow light. M. Luckiesh. *Illum Eng Soc* 10:pt 1a 1017-20 no 9 '15
- See also* Locomotive headlights
- Glasgow, Scotland**
- Streets**
Experience of Glasgow with motor street sweeping machines. *Eng & Contr* 46:218-19 S 6 '16
- Glass, John**
Cravardan, the residence of John Glass, esq., Highland Park, Illinois. I. T. Frary. *il plans Arch Rec* 40:516-23 D '16
- Glass**
American-made chemical glass and porcelain, discussion. *J Ind & Eng Chem* 8:952-4 O '16
- Aspects of the design and use of glass ware in relation to natural and artificial illumination. S. B. Langlands. *Illum Engr* 9:118-22; Discussion. 123-34 Ap '16
- Daylite glass; a color screen for producing daylight artificially. H. P. Gage. *il diag Sibley J* 30:247-50 My '16
- Development of low expansion glasses. E. C. Sullivan. *J Ind & Eng Chem* 8:399-401 My '16; Abstract. *Eng M* 51:599 Jl '16
- Diffusing media—diffusing glassware. *Illum Eng Soc* 11:367-71 no 3 '16
- Electro-chemical action on glass. F. F. S. Bryson. *il Sci Am S* 82:277 O 28 '16
- English glassware for the lighting industry. J. S. Dow. *Am Gas Light J* 105:6 Jl 3 '16
- Glass construction for heavy service. *il Ry Age* 60:315-16 F 18 '16
- Glass in building construction. *Bldg Age* 38:65 Mr '16
- Glass industry; symposium at meeting of New York section of Society of chemical industry. *Met & Chem Eng* 14:357-8 Ap 1 '16
- Glass research. *Engineer* 121:249-50; 122:250, 252 Mr 24, S 22 '16
- Heat transmission through building materials. J. R. Allen. *il diags Heat & Ven* 13:20-4 Ag '16; Same. *Metal Work* 86:490-2 O 20 '16; Excerpts. *Eng & Contr* 47:175-6 Ag 23 '16
- Heat transmission through various types of sash and the causes and prevention of internal condensation in double-glazed sash. A. N. Sheldon. *il Am Soc M E J* 38:890-4 N '16
- Identification of trivalent manganese in glass. S. R. Scholes. *J Ind & Eng Chem* 7:1037 D '15
- Illuminating glassware. *Illum Engr* 9:113-15 Ap '16
- New glass; and an application of the low reflectivity of glass for radiant heat. E. C. Sullivan and W. C. Taylor. *il J Ind & Eng Chem* 7:1064-5 D '15; Same. *Sci Am S* 82:121 Ag 19 '16
- Notes on optical glass. S. Lamb. *Sci Am S* 81:86-7 F 5 '16
- Recent developments in scientific instruments and materials. E. Schramm. *Met & Chem Eng* 15:575-6 N 15 '16
- Sheet glass in lighting. E. H. Bostock. *diags Illum Eng Soc* 10:pt 1a 1086-96 no 9 '15
- See also* Bottles; Glass manufacture; Lamp shades; Stained glass; Windows
- Glass manufacture**
Optical glass; various qualities required, and something of the history and methods of its manufacture. W. Rosenbain. *Sci Am S* 82:118-19 Ag 19 '16; Abstract. *Met & Chem Eng* 14:335-6 Mr 15 '16
- Production of glass for scientific use. B. Blount. *Engineer* 122:81-2 Jl 28 '16

Gloves

- Knitted glove manufacture. W: Davis. diag
Textile World 51:839+ Ja 22 '16
Production of gloves. W: Davis. diags Tex-
tile World 51:153+ D 11 '15
Warp knitting machines for fabric gloves. il
Textile World 51:209 D 18 '15

Glucose

- Chemical composition of commercial glucose
and its digestibility. J. A. Wesener and
G. L. Teller. J Ind & Eng Chem 8:1009-20
N '16

Glucosamine pentacetate

- Isomeric pentacetates of glucosamine and of
chondrosamine. C. S. Hudson and J. K. Dale.
Am Chem Soc J 38:1431-6 JI '16

Glucose

- Chemical composition of commercial glucose
and its digestibility. J. A. Wesener and
G. L. Teller. J Ind & Eng Chem 8:1009-20
N '16
Effects of commercial glucose when fed to
white rats. A. J. Carlson, L. Hektoen and
E. R. LeCount. Am Chem Soc J 38:930-6
Ap '16
Products of the action of certain amylases
upon soluble starch, with special reference to
the formation of glucose. H. C. Sherman and
P. W. Punnett. Am Chem Soc J 38:1877-85
S '16
Role of atmospheric oxygen in the oxidation
of glucose with potassium permanganate in
the presence of varying amounts of alkali;
the products of oxidation. E. J. Witzemann.
Am Chem Soc J 38:150-61 Ja '16

Glue

- Glue, its proper use and treatment. B. H.
Divine. il Metal Ind n s 14:130-2 Mr '16

Glue press

- Details of a home-made glue press. W. S.
Wilkin. diags Bldg Age 38:45-6 Mr '16

Glycerol

- Krebitz process of soap-making and glycerol
recovery. G. A. Wrisley. J Ind & Eng Chem
8:732-3 Ag '16

Goggles

- Care of eyes at mine plants. il Coal Age 10:
581 O 7 '16
How to test the lenses of goggles. F. W. King.
Iron Tr R 58:140+ Ja 13 '16
Protection for the eyes of shop employees.
Pennsylvania railroad. R. H. Newbern. il Ry
R 59:510-11 O 14 '16
Protection of the eye from dangerous radi-
ations. W. S. Andrews. Gen Elec R 19:86 Ja
'16
Pullman company practice regarding goggles.
M. E. Arkills. Ry R 59:563-4 O 21 '16

Gold

- Black Hills gold-bearing iron-quartz-tremolite
belt. B. M. O'Harra. il map Eng & Min J
101:770-3 Ap 29 '16
Commercial movement of the precious metals.
Eng & Min J 101:45-6 Ja 8 '16
Gold and silver deposits in North and South
America. W. Lindgren. maps Am Inst Min
E Bul 112:721-46 Ap '16
Gold and silver statistics. F: Hobart. Eng &
Min J 101:43-5 Ja 8 '16
Gold production in Australia. Eng & Min J
102:301 Ag 12 '16
Gold production in Russia. Eng & Min J 102:
835 N 4 '16
Melting down foreign gold. il Sci Am S 82:248
O 14 '16
Walhalla district. S. C. F. P. Peterson and
F. H. Flynn. il Eng & Min J 101:379-82 F
26 '16

See also Gold dredging; Gold metallurgy;
Gold milling; Gold mines and mining; Gold-
smithing

Gold alloys

- Blistering of gold alloys. H. D. Coleman.
Metal Ind n s 14:118 Mr '16

Gold assaying

- Segregation in gold bullion. J. H. Hance. diag
Am Inst Min E Bul 110:299-326 F '16; Sum-
mary. Met & Chem Eng 14:326-7 Mr 15 '16;
Discussion. Am Inst Min E Bul 113:1004-10
My '16

Gold cleaning

- Removal of fire coat from gold. C: H. Proctor.
Metal Ind n s 14:331 Ag '16

Gold dredging

- California dredge with two tailings stackers.
L: H. Eddy. il diag Eng & Min J 101:169-72
Ja 22 '16
Derry Ranch gold dredge. il Eng & Min J 101:
150-1 Ja 15 '16
Development of dredging in Yukon territory.
O. B. Perry. il Eng & Min J 100:1039-44 D
25 '15
Dredging and hydraulicking in 1915 by the
Yukon gold co. O. B. Perry. Eng & Min J
101:550-1 Mr 25 '16
Dredging in Mozambique. L. C. de la Marliere.
il Eng & Min J 101:673-5 Ap 15 '16
Dredging in Straits of Magellan. Eng & Min
J 101:403 F 26 '16
Gold dredging in 1915. R. E. Cranston. Eng
& Min J 101:100-2 Ja 8 '16
Gold dredging in Philippines. Eng & Min J
100:965 D 11 '15
History and development of gold dredging in
Montana. H. Jennings. bibliog il diags U S
Bur Mines Bul 121:1-41 '16
Jigs on a California dredge. L: H. Eddy. il
diag Eng & Min J 101:207-8 Ja 29 '16
Mining the frozen gravels of the Arctic. H. M.
Payne. il Sibley J 30:386-7; 31:2-6 S-O '16
Pato dredging operations. Eng & Min J 101:
815 My 6 '16
Placer-mining methods and operating costs.
C: Janin. U S Bur Mines Bul 121:55-8 '16;
Same cond. Eng & Contr 46:255 S 20 '16
Yuba no. 15 all-steel gold dredge. L: H. Eddy.
il Eng & Min J 102:329-30 Ag 19 '16
See also Gold mines and mining

Gold metallurgy

- Central mill of the North Star mines co. L. A.
Palmer. il diag Met & Chem Eng 14:35-8 Ja
1 '16
Concentration formulas. Eng & Min J 101:17,
187, 402, 613 Ja 1, 22, F 26, Ap 1 '16
Efficient pulp distributor. A. McLaren. diags
Eng & Min J 102:57 JI 1 '16
Extraction of gold and silver from matte by
lead. W. Mostowitsch. diag Met & Chem
Eng 14:703-6 Je 15 '16; Excerpt. Eng & Min
J 102:183 JI 22 '16
Flotation of flour gold. R. W. Smith. flow
sheet Eng & Min J 102:25-7 JI 1 '16
Flotation tests on an antimony gold ore. E. R.
Pilgrim. Eng & Min J 102:820 N 4 '16
Hydrometallurgical treatment of complex gold
and silver ores. G. H. Clevenger. Met &
Chem Eng 14:203-10 F 15 '16
Metallurgical practice in the Witwatersrand
district, South Africa. F. L. Bosqui. diags
Am Inst Min E Bul 101:997-1033 My '15; Ab-
stract. Met & Chem Eng 13:925-7 D 1 '15;
Discussion. Am Inst Min E Bul 108:2436-53;
109:169-72 D '15-Ja '16
Metallurgy of gold and silver. H. A. Megraw.
Eng & Min J 101:94-7 Ja 8 '16
Metallurgy of the Sons of Gwalia ore, Aus-
tralia. T: B. Stevens. Met & Chem Eng 14:
106-7 Ja 15 '16
Precious metal metallurgy in 1915. Met &
Chem Eng 14:3-4 Ja 1 '16
Robbins barrel amalgamator. diag Eng & Min
J 102:712 O 14 '16
Treating amalgamation tailings. J: Allingham.
Eng & Min J 102:591-2 S 30 '16
Treatment of anode slime, patented process
of F. C. Ryan. Met & Chem Eng 15:104 JI
15 '16

See also Cyanide process; Gold milling;
Stamp mills

Gold milling

- Bunker Hill and Sullivan milling data. R. S.
Handy. flow sheet diags Eng & Min J 102:
35-7 JI 1 '16
Cyaniding clayey ore at the Buckhorn gold
mine; with tabulation of milling costs. F. R.
Cook. flow sheet Am Inst Min E Bul 117:
1556-63 S '16
Don Luis Charme's Tremain steam stamp.
M. R. Lamb. il Eng & Min J 102:17-19 JI 1
'16
Donald's cradle crusher. flow sheet Eng &
Min J 102:183 JI 22 '16
Electric power in gold-ore reduction. il Elec
R & W Elec'n 68:230-2 F 5 '16
Scheelite-gold mines of Otago, New Zealand.
C. W. Gudgeon. flow sheets Eng & Min J
102:346-7 Ag 19 '16

Gold milling—Continued

Cost

Stamp milling at Alaska Treadwell. Eng & Min J 102:46 J1 1 '16

Gold mines and mining

Sampling placer-gravel deposits. I. Herr. plans Eng & Min J 102:261-2 Ag 5 '16

See also Gold dredging; Gold milling; Hydraulic mining; also Alaska Juneau gold mining company

Alaska and the Yukon

Alaska gold mines. Eng & Min J 100:937-8 D 4 '15

Development of dredging in Yukon territory. O. B. Perry. il Eng & Min J 100:1039-44 D 25 '15

Exploitation of Juneau mines. Eng & Min J 100:1019-20 D 18 '15

Idiosyncrasies of the paystreak. J. A. MacDonald. diag Eng & Min J 101:889 My 20 '16

Juneau gold lode. F. W. Bradley. Eng & Min J 100:935 D 4 '15

Lübecker excavator in the Klondike. C. A. Thomas. il Eng & Min J 101:1057-9 Je 17 '16; Same cond. Eng N 76:74-5 J1 13 '16

Mining at Juneau in 1915. Eng & Min J 101:134-6 Ja 15 '16

Mining the frozen gravels of the Arctic. H. M. Payne. il Sibley J 30:383-7 S '16

Sluicing methods at Fairbanks. H. I. Ellis. il diags Eng & Min J 100:993-6 D 18 '15

Willow Creek gold district. Eng & Min J 100:936 D 4 '15

Arizona

Mining conditions around Oatman and Kingman. map Eng & Min J 101:5-6 Ja 1 '16

Oatman district, Arizona. L. A. Palmer. il Eng & Min J 101:895-900 My 20 '16

Tom Reed-Gold Road mining district. J. D. Sperr. il map Eng & Min J 101:1-5 Ja 1 '16

United Eastern mine. Oatman. Ariz. J. A. Burgess. il Eng & Min J 102:232-3 J1 29 '16

Brazil

Deepest gold mine, Morro Velho. Eng & Min J 100:977 D 11 '15

Gold mines of Brazil. B. L. Miller and J. T. Singewald, jr. il diag plan Eng & Min J 102:207-12 J1 29 '16

British Guiana

Mining in British Guiana. F. Fowler. Eng & Min J 101:725-6 Ap 22 '16

California

Argonaut mine. L. H. Eddy. il Eng & Min J 102:265-7 Ag 5 '16

Consolidated Amador mines. L. H. Eddy. il Eng & Min J 102:189-91 J1 22 '16

New strike at Goldstone. L. A. Palmer. il Eng & Min J 101:1040-1 Je 10 '16

Canada

Gold lake district, Manitoba, Canada. G. A. Packard. map Eng & Min J 101:339-40 F 19 '16

Manitoba gold-belt prospects. R. C. Wallace. Eng & Min J 102:332 Ag 19 '16

Pre-Cambrian gold fields of central Canada. J. B. Tyrrell. Eng & Min J 101:275 F 5 '16

Colorado

San Miguel river canyon flume—a monument of gold mining failure. W. F. Wilcox. il Sci Am 114:123 Ja 29 '16

Ecuador

Mining in Ecuador. J. W. Mercer. Eng & Min J 101:343-6 F 19 '16

Idaho

Rich gold ore found in Idaho. R. N. Bell. Eng & Min J 102:783-5 O 28 '16

Mexico

Mining and milling practice at Santa Gertrudis. H. Rose. il diags plans flow sheet Am Inst Min E Bul 116:1299-1314 Ag '16; Same. Eng & Min J 102:372-6 Ag 26 '16

Nevada

Sunset property at Rhyolite. E. S. Van Dyck. Eng & Min J 101:520 Mr 18 '16

Siberia

Mining the frozen gravels of the Arctic. H. M. Payne. il Sibley J 31:2-6 O '16

Transvaal

Application of electric power to mining work in the Witwatersrand area, South Africa. J. N. Bulkeley. diags Am Inst Min E Bul 110:355-73 F '16

Crown mines hoist installation. F. L. Stone. il map Gen Elec R 19:556-60 Je '16

Dust allaying in Rand mines. A. C. Key. il Eng & Min J 101:1065-7 Je 17 '16

Rand mining in 1915. A. C. Key. Eng & Min J 101:809-10 My 6 '16

Rand's ore reserves. A. C. Key. Eng & Min J 102:557-8 S 23 '16

Goldsmithing

Goldsmiths' work in the dark ages. W. M. Conway. Sci Am S 82:151 S 2 '16

Good roads congress, American. See American good roads congress

Good roads show, National. See National good roads show

Gothic architecture. See Architecture, Gothic

Government accounting

Recent changes in the net balance in the United States treasury. H. S. Chase. J Account 21:16-23 Ja '16

See also Counties—Accounting; Highway accounting; Municipal accounting

Government buildings. See Public buildings

Government employees

See also Civil service

Government ownership

Address. G. A. Post. Ry Age 61:754-7 O 27 '16

Economic, social and political conditions in Europe which influence government ownership of the telephone. J. P. Duncan. Elec R & W Elec N 67:1153-5 D 25 '15

Failure of government railway ownership in Canada. Eng Rec 74:127 J1 29 '16

Government ownership. C. A. Prouty. Elec Ry J 47:38 Ja 1 '16

Government ownership justified by United States forester. Elec W 66:1409 D 25 '15

Government ownership of utilities opposed by Merchants' association of New York. Elec W 68:1089-90 D 2 '16

Imperative need for ships owned by Americans. W. C. Redfield. Eng M 50:661-5 F '16

Organized capital vs. socialism. R. H. Tingley. Am Ind 17:33-4 O '16

Results of government ownership. A. A. Blow. Iron Tr R 58:1273-4 Je 8 '16

See also Government regulation of industry; Municipal ownership; Public utilities; Railroads and state; Telegraph—Government ownership; Telephone—Government ownership

Government regulation of industry

Broader training for the engineer. A. C. Humphreys. Stevens Ind 32:294-315 O '15

Business legislation now before Congress. Am Ind 16:13-19 F '16

Government attitude toward business; Chamber of commerce of the United States secures an authoritative statement from the attorney-general. Dom Eng 74:116-17 Ja 22 '16

Industrial conditions and needs. W. H. Barr. Am Ind 16:15-17 D '15

Over-load of anti-business legislation. H. D. Estabrook. Am Ind 16:14-16 Mr '16

Results of control by government in Great Britain. J. Horton. Iron Tr R 59:335-6 Ag 17 '16

See also Electric service companies—Regulation; Gas companies—Regulation; Government ownership; Interstate commerce commission; Municipal ownership; Public utilities—Regulation; Public utilities commissions; Railroad commissions; Railroads—Rates; Railroads and state; Street railroads—Public relations

Government research, Institute for. See Institute for government research

Governors (machinery)

Kitts fan-engine regulator. il Power 43:181-2 F 8 '16

Governors (machinery)—Continued

- Oil troubles with hydraulic governors. R. H. Lewis. *diag Elec W* 68:911 N 4 '16
 Prevention of fly-wheel explosions. *diags Locomotive* 31:6-14 Ja '16
 Pump governor experience. J. C. Hawkins. *diag Power* 43:743 My 23 '16
 Roybel emergency governor. *il diag Coal Age* 8:760-1 N 6 '15
 Two causes for engine wrecks. H. E. Collins. *diags Power* 43:249-51 F 22 '16
 Water-wheel governor. *il Elec W* 68:585 S 16 '16; *Eng Rec* 74:426 S 30 '16

Grade crossing elimination

- Drainage drifts have apparently stopped slides at hillside grade separation. H. G. Wray. *il plan Eng Rec* 74:144-6 J1 29 '16
 Eliminating a group of nine grade crossings on the Long Island R. R. W. L. Selmer. *il diags plan Ry R* 58:536-43 Ap 15 '16
 Elimination of grade crossings in Dallas, Tex.; report. map *Ry Age* 59:1087-8 D 10 '15
 Extensive grade separation at Spokane, Wash. *il diags Ry Age* 60:949-52 Ap 28 '16
 Grade crossing elimination at Cleveland. *il plan Ry Age* 60:1335-7 Je 16 '16
 Grade-crossing elimination at Memphis bridge terminals. J. H. Weatherford. *il diags map Eng N* 76:160-1 J1 27 '16
 Grade-crossing elimination by relocations. *il Eng N* 75:895-6 My 11 '16
 Hydraulic excavation of a large cut in Cleveland, Ohio, grade crossing elimination. C. E. Drayer. *plan Eng & Contr* 46:59 J1 19 '16
 Improvements at Pawtucket and Central Falls, R. I. *il plans Ry Age* 60:13-17 Ja 7 '16
 Simple type of concrete bridge for grade crossings. C. W. Martin. *il diags Eng N* 75:408-10 Mr 2 '16
 Single grade-crossing elimination at Pittsburgh will cost \$750,000. *il diags plan Eng Rec* 73:797-9 Je 17 '16
 Study of grade crossing elimination in cities. C. N. Bainbridge. *il diags W Soc E J* 20:628-69 O '15; Same cond. *Ry Age* 59:45-8 J1 9 '15; Excerpt. *Eng Rec* 71:770 Je 19 '15; Discussion. *W Soc E J* 20:669-70 O '15
 Track depression project at Minneapolis. C. N. Bainbridge. *il diags plans Ry Age* 59:1059-63 D 3 '15

See also Railroads—Track elevation

Grade crossings

- Accidents at grade crossings and to trespassers. A. Gordon. *Ry Age* 60:1323-5 Je 16 '16; Same abr. *Good Roads n s* 12:113-15 S 2 '16
 Alignment and drainage of rural highways. H. E. Bilger. *Eng N* 76:875 N 9 '16
 Automobiles and crossing watchmen. *Ry R* 58:242-3 F 12 '16
 Belt line is proposed as solution of Dallas grade-crossing problem. J. F. Wallace. *maps Eng Rec* 72:722-5 D 11 '15
 Briggs automatic motor-driven railroad crossing gate. *il diag Elec W* 67:953 Ap 22 '16
 Concrete slabs used at railroad crossings. *diag Eng Rec* 73:350 Mr 11 '16
 Extra right-of-way recommended at sharp curves. H. E. Bilger. *Eng Rec* 74:77 J1 15 '16
 Good service at highway crossings. *Ry Age* 60:45-6 Ja 14 '16
 Grade checks at railroad street crossings. *Eng N* 76:462 S 7 '16
 Hand signals for crossing watchmen. *il Ry Age* 60:165-6 Ja 28 '16
 Highway crossing accidents—their cause, and how they can be reduced. J. S. Rockwell. *Ry R* 59:558-9 O 21 '16
 Highway crossing signals. *il Ry R* 59:564-5 O 21 '16
 Highway crossings and track in paved streets. *diags Ry R* 58:702-5 My 20 '16
 Idea in grade crossing protection. *il Ry R* 58:169 Ja 29 '16
 Joint grade crossing report. *il Ry Age* 61:157-8 J1 28 '16; Same. *Elec Ry J* 48:270 Ag 12 '16
 1916 grade crossing campaign of the Long Island R. R. L. W. Allison. *Ry R* 59:513-15 O 14 '16
 Prevention of accidents at grade crossings; report of committee of American railway association. *Ry Age* 60:1219-20 Je 9 '16

- Proposed legislation to prevent grade crossing accidents. *Ry Age* 61:898-9 N 17 '16
 Railway-crossing pavement with wedge runoff. *diags Eng N* 75:421-2 Mr 2 '16
 To promote safety at highway crossings. *Ry Age* 59:1119-20 D 17 '15

See also Grade crossing elimination; Railroads—Construction; Railroads—Signals; Railroads—Track; Railroads—Track elevation

Grading

- Elevating grader of all-steel frame construction for road work. *il Munic J* 40:508 Je 29 '16
 Grades and street intersections. J. Wilson. *plan Munic J* 41:541-2 N 2 '16
 Heavy street grades cut down in San Francisco. *il diag Eng Rec* 74:556 N 4 '16
 Park grading by day labor. *il diag Eng N* 76:966-7 N 23 '16
 Reducing hillside street grade from 29 to 16 per cent. *plan Eng N* 75:12-13 Ja 6 '16
 Steam shovel grading on Rattle Snake Point road in Oregon. N. J. Chapman. *il Eng & Contr* 45:527 Je 7 '16

See also Street railroads—Grades

Cost

- Cable system handles dump wagons on heavy grades. J. Owen. *il plan Eng N* 76:272-3 Ag 10 '16
 Earth handled cheaply in grading Utah roads. *il Eng N* 76:28-9 J1 6 '16
 Road grading costs in Crawford county, Iowa. *Eng & Contr* 46:438 N 15 '16
 Small steam shovel work in road grading, Contra Costa county, California; with cost data. J. E. Bonersmith. *Eng & Contr* 46:59-60 J1 19 '16
 Unit costs on street grading with a steam shovel, in Minneapolis, Minnesota. F. T. Paul. *Eng & Contr* 45:531-2 Je 7 '16
 Grading industries. E. S. Wiard. *diags Met & Chem Eng* 14:91-6, 191-7, 529-33, 575-80 Ja 15, F 15, My 1-15 '16

Graffiti decoration

- So-called house of Benvenuto Cellini in the Vicolo Cellini in Rome. E. Gugler. *il Am Inst Arch J* 4:341-5 Ag '16

Grahamite

- Gilsonite and grahamite; the result of the metamorphism of petroleum under a particular environment. C. Richardson. *J Ind & Eng Chem* 8:493-4 Je '16; Same. *Sci Am S* 82:310 N 11 '16

Grain dust

- Cereal dust explosions. D: J. Price. *Colliery* 35:671-2 J1 '15; Abstract. *Sci Am* 114:15 Ja 1 '16
 Dust explosions and fires in grain separators in the Pacific northwest. D: J. Price and E. B. McCormick. *il diags 11 pls U S Agric Bul* 379:1-22 '16

Grain elevators

- Concrete grain elevator built with steel forms at Niantic, Ill. *il Conerete* 9:151 N '16
 Design of a million-bushel public grain elevator at New Orleans, La. *plans Eng & Contr* 45:12-14 Ja 5 '16
 Failure and righting of a million-bushel grain elevator, North Transcona, Can. A. Allaire. *il diags Eng & Contr* 45:66-8, 110-13 Ja 19, F 2 '16
 Grain elevating and conveying plant at Sunderland, *il diags (supp) Engineer* 121:282-3 Mr 31 '16
 How the Transcona elevator settled and tipped. P. B. Gaffney. *Eng N* 74:1189 D 16 '15
 New grain elevator of the Western Maryland Ry. at Baltimore. *il Ry R* 58:357-8 Mr 11 '16
 Railway fire protection association report of committee on fire prevention and protection at grain elevators. *Ry Age* 61:602-5 O 6 '16
 Run of 1200 yards in twenty hours made with conveyor system for concrete aggregates. *il Eng Rec* 74:567 N 4 '16
 Scheme to prevent motor-driven elevator from backing up when service is interrupted. *diag Elec W* 67:771-2 Ap 1 '16
 When poor load-factor brings good business; electrical operation of grain elevators in Kansas City. *il Elec W* 67:158-60 Ja 15 '16

Grain handling

Grain elevating and conveying plant at Sunderland, il diags (supp) Engineer 121:282-3 Mr 31 '16

Grain trade

Traffic routes from the Lakes to the seaboard, map Eng N 76:604-5 S 28 '16

Grand Canyon

Grand Canyon of the Colorado, M. Daniels, il Am For 22:202-8 Ap '16
Surveying dam sites in the Grand Canyon, il Eng N 76:396-7 Ag 17 '16

Grand River dam

Building the rolling-crest dam across Grand river, il plan Eng N 76:60-4 Jl 13 '16
Large roller-crest dam, Grand valley project, Colorado, F. Teichman, il diags Eng N 76:1-4 Jl 6 '16

Grandstands

Cantilever grandstand roof with tension in posts, Majestic park, Salt Lake City, diag Eng N 76:707 O 12 '16
Grandstand for the Chicago automobile speedway, il diags Eng N 74:1166-7 D 16 '15
Seats for grandstands and railway station signs, J. F. Jackson, diag Eng N 74:1239 D 23 '15

See also Naval reviewing stands

Granite

Motor drive increasing in stone dressing, il Elec R & W Elec N 69:288 Ag 12 '16

Granite blocks

Measuring yardage of granite blocks by weight instead of count, C. H. Clark, Elec Ry J 17:363 My 20 '16; Abstract, Eng N 75:1094 Je 8 '16

Granite pavements. See Pavements, Granite**Grape seeds**

Oil of the wild grape seed, its vitis riparia, G. D. Beal and C. K. Beebe, J Ind & Eng Chem 7:1054 D '15

Grapes

Occurrence of sucrose in grapes of American origin, H. C. Gore, J Ind & Eng Chem 8:333-4 Ap '16
Occurrence of sucrose in relatively large amounts in a new seedling grape, W. B. Alwood and J. R. Eoff, jr, J Ind & Eng Chem 8:334-5 Ap '16

Grapevines

Paper from grapevines, Sci Am S 81:80 Ja 29 '16

Graphic intergrowths

Paragenesis of certain sulphide intergrowths, W. L. Whitehead, il Econ Geol 11:1-13 Ja '16

Graphic methods

Ascertaining the status of an industry, Iron Age 97:471-2 F 24 '16
Bar system of charting has little to recommend it for general application to gas company records, S. C. Tarrant, Am Gas Light J 105:355-6 N 27 '16
Belt-conveyor operating data, J. D. Morgan, Power 44:490-2 O 3 '16
Charts show monthly progress and expenditure on road work, H. S. Van Scoyoc, Eng Rec 73:325 Ap 15 '16
Clinkering of bituminous coal, F. C. Hubley, Power 44:550-2, 591-3, 649-51 O 17-24, N 7 '16
Curves that plot the performance and efficiency of the salesman, F. H. Hill, Elec W 68:327 Ag 12 '16
Data and discussion on cast iron pipe joint tests for the San Francisco high pressure fire system, A. J. Bowie, diags Eng & Contr 46:40-4 Jl 12 '16
Design charts for open flumes with catenary section, E. L. Robinson, Eng N 75:566-7 Mr 23 '16
Diagrams for cost of placing steel reinforcement, D. Patch, Eng Rec 74:264 Ag 26 '16
Distribution of employees in departments of a central station, Elec W 68:866 O 28 '16
Efficiency in car operation, J. F. Layng, Gen Elec R 19:758-63 S '16
Efficiency in the boiler room, J. Harrington, Power 44:270-4 Ag 22 '16
Efficient employees are an element in costs, S. J. Dill, Elec W 68:110-11 Ag 26 '16
Flow of water into wells; approximate theory, N. Werenskiold, diags Eng N 76:256-7 Ag 10 '16

Graphic aid in figuring power bills, R. W. Parker, Elec W 67:142-2 Je 17 '16

Graphic analyses of managerial problems, E. D. Dreyfus, Elec W 68:710-12 O 7 '16

Graphic analysis of riveted boiler joints, A. A. Adler, diags Power 44:159-62 Ag 1 '16

Graphic methods of analysis in the design and operation of steam power plants, R. J. S. Pigott, Am Soc M E J 38:947-53 D '16

Graphic studies of ultimate analyses of coals, O. C. Ralston, bibliog diags U S Bur Mines Tech Pa 93:1-38 '15; Excerpt, Elec W 68:229 Jl 29 '16

Graphic train sheet, F. W. Rizer, il Ry Age 60:1549-50 Je 23 '16

Graphical determination of thermal value of coal, W. C. Stripe, Power 43:16-7 Ja 11 '16

Graphical solution of the problem of storm flow through a reservoir, A. S. Fry, Eng & Contr 45:370-2 Ap 19 '16

Graphical solutions of electric railway problems, A. M. Buck, diags Ill U Eng Exp Sta Bul 90:1-33 '16; Abstract, Elec Ry J 48:281 Ag 12 '16

How graphic control facilitates the fixing of profits, D. T. Farnham, Eng M 52:16-22 O '16

Mass diagram for power and water-supply computations, W. L. Butcher, Eng N 76:376-8 Ag 21 '16

Motor drive for operating steel rolling mill; graphical solution of load imposed on a motor, W. Knight, Elec W 68:662-5 S 30 '16

Nomographic solutions of certain stratigraphic measurements, H. S. Palmer, diags Econ Geol 11:14-29 Ja '16

Operation of the blast furnace, J. E. Johnson, jr, il Met & Chem Eng 14:363-72 Ap 1 '16

Ounces pressure vs. inches of water; diagram, E. C. Smith, Power 44:142 Jl 25 '16

Picturing prices by charts, H. B. Twyford, il Factory 16:573-5 Je '16

Population studies by Moore expectancy curve, G. H. Moore, Eng N 76:844 N 2 '16

Power generation for electric railways, H. G. Stott, Elec Ry J 47:1170-3 Je 24 '16

Program of construction work shown graphically, diag Eng Rec 74:89 Jl 15 '16

Progress of economic power generation and distribution, S. Insull, il diags Am Soc M E J 38:845-54 N '16

Scientific versus intuitive administration, D. T. Farnham, Eng M 51:849-54 S '16

Standardization of power plant operating costs; with discussion, W. N. Polakov, Am Soc M E J 38:290-7 Ap '16; Same cond. Power 43:232-5 F 15 '16

System for plotting and cross-fairing results in lubrication testing, G. B. Upton, Sibley J 30:194-6 Mr '16; Same cond. Am Soc M E J 38:428 My '16

Visualizing the essential facts of a business, D. T. Farnham, Eng M 51:651-6 Ag '16

See also Charts; Curve plotting

Graphic statics

Calculation of scale members, E. Motchman, diags Ry R 59:418-19, 460-2, 527-9 S 23-30, O 14 '16

Deflection of trusses, E. H. Casper and C. J. Kennedy, diags W Soc E J 21:115-35 F '16

Diagram useful for bending up steel reinforcement, K. D. Schwendener, Eng Rec 74:239 Ag 19 '16

Diagrams for the design of reinforced concrete T beams, M. A. Drucker, Eng & Contr 45:579-80 Je 28 '16

Elastic curves and influence lines, I. Duberstein, Eng Rec 73:292 F 26 '16

Elastic curves and influence lines simplify analysis of beams, J. P. J. Williams, Eng Rec 72:762-5 D 18 '15

Graphic analysis of building vibrations, E. E. Hall, il Elec W 66:1356-8 D 18 '15

Graphical analysis of arches with fixed ends greatly simplified, C. S. Whitney, Eng Rec 72:324-6 S 11 '15; Correction, 72:798 D 25 '15

Influence lines as deflection diagrams, D. B. Steinman, diags Eng Rec 74:648-50 N 25 '16

Spacing diagram for hoop reinforcing for reinforced concrete standpipes, F. H. Carter, Eng & Contr 46:133 Ag 9 '16

Stirrup spacing diagrams, F. S. Bailey, Eng N 76:694-5 O 12 '16

Graphic statics—*Continued*

Theory of displacements applied to analysis of suspension bridges. C. S. Whitney. Eng Rec 74:234-5 Ag 19 '16

Use of influence lines; with discussion. R. W. Flowers and H. N. Jones, jr. diags W Soc E J 21:136-58 F '16

See also Bridge design; Girders; Strains and stresses; Strength of materials

Graphite

Combining graphite with alloy in the manufacture of self-lubricating metal. R. F. Yates. il Sci Am 115:318-19 O 7 '16

Federal graphite lubricator. il Power 43:188 F 8 '16

Graphite as a lubricant. C. H. Bierbaum. il Mach 22:887-8 Je '16

Graphite in locomotive valve chambers and cylinders. M. C. M. Hatch. Ry Mech Eng 90:118-19 Mr '16

Graphite in Madagascar. Iron Tr R 57:1302c D 30 '15

Graphite industry in New York. R. W. Jones. il Eng & Min J 102:773-5 O 28 '16

Graphite lubricator for locomotive cylinders. diag Ry Age 60:255 F 11 '16; Same. Ry Mech Eng 90:104 F '16

Permanent graphite molds for metals and alloys. Foundry 44:191 My '16

Shortage of graphite. Foundry 44:213-14 Je '16

Use of graphite in the lubrication of cylinders. F. W. Carter. Power 43:47-8 Ja 11 '16

Why graphite products have been advanced. Foundry 44:37 Ja '16

Grasshoppers. See Locusts**Grates**

Improved grate bars in use at Sandoval, Ill. E. Hermann. diag Eng & Min J 101:602 Ap 1 '16

Maintaining fire on portion of grates to improve light-load efficiency. A. E. Anderson. diag Elec W 67:881 Ap 15 '16

Morse shaking-dumping grate. il Power 43:146 F 1 '16

Reason for unequal deterioration of grates. R. I. Elkin. Elec W 67:944 Ap 22 '16; Same. Am Gas Light J 104:317 My 15 '16

Selecting furnace grates that will have long life and low maintenance. R. I. Elkin. Elec W 68:373-4 Ag 19 '16

States sectional grate bar. il Power 42:858 D 21 '15

Thomas elliptic grate bar. il Textile World 51:4749-50 N 1 '16

Graton & Knight manufacturing co.

Changes in Graton & Knight plant sky line. il Textile World 51:3555+ Ag 12 '16

Gravel

Comparative costs of hauling gravel by team and by tractor for road work. O. L. Kipp. Eng & Contr 45:327-9 Ap 5 '16; Same. Munic Eng 50:138-9 Ap '16; Abstract. Eng N 75:567-8 Mr 23 '16

Economical gravel production and hauling for road work. il Concrete 9:66 Ag '16

Giant revolving shovel used at gravel plant. il Eng Rec 74:345 S 16 '16

Gravel as an aggregate for concrete. H. H. Scofield and C. C. Brown. Munic Eng 50:135-6 Ap '16

Gravel grading machine used at Grand Rapids, Mich., filter plant. il Eng & Contr 46:405 N 8 '16

How shall a rational specification for gravel be developed? C. C. Brown. Ry Age 60:507 Mr 17 '16

Mammoth sand and gravel plant employs unusual methods. W. B. Conant. il Concrete 9:62-3 Ag '16

Mining the frozen gravels of the Arctic. H. M. Payne. il Sibley J 30:383-5 S '16; Excerpt. Eng & Contr 46:337 O 18 '16

Modern sand and gravel plant formally opened at Marlborough, N. Y. il Eng N 76:470 S 7 '16

Portable washing plant for preparing aggregates for concrete road construction. H. C. Campbell. diags Eng & Contr 46:15-18 Jl 5 '16

Sand and gravel washing and grading plant. Lynnfield, Mass. C. B. Breed. il Eng N 74:1204-5 D 23 '15

Small gravel washing plant, Wauwatosa, Wis. il Concrete Cem 8:42-3 Ja '16

Weight of sand and gravel per cubic yard. Concrete 9:81 S '16

See also Concrete—Aggregate

Gravel heaters

Mullen gravel heater and dryer. il Munic Eng 51:27-8 Jl '16; Eng & Contr 45:557 Je 21 '16; Munic J 40:775-6 Je 1 '16

Gravel roads. See Roads, Gravel**Gravel washers**

Portable washer for aggregate. il diags Eng N 75:818-19 Ap 27 '16; Munic Eng 51:31 Jl '16

Gravimetric analysis. See Chemistry, Analytic—Quantitative**Gravitation**

Gravitation at the earth's center. J. C. Dean. Sci Am S 81:201 Mr 25 '16

Gravity, Center of. See Center of mass**Gravity conveyors.** See Conveying machinery**Grease.** See Lubrication and lubricants**Grease traps.** See Plumbing—Traps**Great Britain****Advisory council for scientific and industrial research**

Scientific and industrial research. Engineer 121:259-60 Mr 24 '16

Scientific and industrial research; report of the Advisory council. Engineer 122:187-8, 219-20, 230-1 S 1-15 '16; Abstract. Illum Engr 9:277-80 S '16

Aeronautics, Military

England's mistake a lesson to us; Royal aircraft factory. H. Woodhouse. Sci Am 115:281 S 23 '16

Army

Corps of mechanical engineers. A. E. Berri-man. Engineer 121:396 My 12 '16

Commerce

Digging in for the coming trade war. L. R. Freeman. Eng M 51:493-500 Jl '16

Commercial policy

Engineering industry after the war. Engineer 122:357-8 S 22 '16

Expansion and development of British industries. F. A. Reuss. Engineer 122:138 Ag 18 '16

Economic conditions

British workshop needs. H. F. L. Orcutt. Iron Age 98:412-13 Ag 24 '16

Labour and wages. Engineer 121:18 Ja 7 '16

1915—a retrospect. Engineer 121:13-15 Ja 7 '16

President's address to the engineering section of the British association. G. Stoney. Engineer 122:205-7 S 8 '16

Results of control by government. J. Horton. Iron Tr R 59:335-6 Ag 17 '16

Scottish local section: chairman's address. D. A. Starr. Inst E E J 54:46-9 D 1 '15

Trade and employment after the war. Engineer 121:111-12 F 4 '16

Western local section: chairman's address. D. E. Roberts. Inst E E J 54:53-4 D 1 '15

Yorkshire local section: chairman's address. H. H. Wright. Inst E E J 54:110-13 D 15 '15

Industries and resources

British dyestuff manufacture. Met & Chem Eng 15:416-18 O 1 '16

British science and industry. Engineer 122:57-8 Jl 21 '16

British science guild; memorandum on proposed National statutory board of science and industry. Illum Engr 9:251 Ag '16

Engineering after the war. A. D. C. Parsons, E. L. Orde and G. H. Tweddle. Engineer 122:400 N 3 '16

Engineering industries in 1915. Engineer 121:2-4 Ja 7 '16

English markets in a year of war. J. Horton. Iron Tr R 58:104-6+ Ja 6 '16

Fuel economy in Great Britain; abstract, with discussion. H. E. Armstrong. Met & Chem Eng 15:354-6 S 15 '16

Gas industry in England. Am Gas Light J 105:188 S 18 '16

Great Britain—Industries and resources—*Cont.*
Machinery industry in Great Britain. A. Lu-
chars. Mach 23:51-2 S '16

See also Automobile industry—Great Brit-
ain; Electric industries—Great Britain;
Great Britain—Advisory council for scien-
tific and industrial research

Navy

Merchant navy in war time. W. S. Abell. Engi-
neer 121:88-9 Ja 28 '16

Naval preparedness—the British fleet. B. A.
Sinn. Int Marine Eng 21:314-15 Jl '16

Railroads

See Railroads—Great Britain

Great Lakes

Investigation of the International joint com-
mission upon the pollution of boundary
waters. E. B. Phelps. W Soc E J 20:721-7;
Discussion. 727-36 N '15

See also Welland ship canal

Great Northern railway

Abstract from annual report. Ry Age 59:1045-
6 D 3 '15

62d annual report. map Ry Age 61:928-30, 969-
73 N 21 '16

Snowsheds and tunnels on the Great Northern
Ry. diags Eng N 75:1168-70 Je 22 '16

Greeley, Samuel S., 1824-1916

Sketch. por Eng & Contr 45:sup23-4 Mr 15 '16

Greenheart

Greenheart of commerce. C. D. Mell. il Am For
22:288-91 My '16

Greenheart timber for canal and harbor works.
H: Goldmark. Eng Rec 73:330 Mr 4 '16

Greenheart, used in Panama canal, is a tim-
ber with exceptional qualities. A. K. Arm-
strong. Eng Rec 73:149-50, 180-1 Ja 29-F 5
'16; Abstract. Eng M 50:938 Mr '16

Resistance of greenheart to wood-destroying
fungi. Sci Am 115:156 Ag 12 '16

Greenhouses

Designing of greenhouse heating plants. P.
McKee. il Metal Work 85:407-8, 516-17 Mr 24,
Ap 14 '16

Forced circulation for greenhouse heating.
diags Metal Work 86:673-4 D 1 '16

Greenhouse heating system. diags Metal Work
84:715, 808-9, 842-3; 85:102, 134-5 D 3, 24-31
'15, Ja 14-21 '16

Heating a conservatory and greenhouse. J. D.
Hoffman. diags plans Dom Eng 76:221-2 Ag
12 '16; Same. Heat & Ven 13:31-8 S '16.
Same. Metal Work 86:340-1 S 15 '16

Greiner, Adolphe, 1843-1915

Sketch. por Engineer 120:533-4 D 3 '15; Iron
Age 96:1335 D 2 '15; Iron Tr R 57:1143 D 9
'15

Tribute. H: M. Howe. Iron Age 96:1428 D 16
'15

Grenades

English rifle grenades. il Sci Am S 81:197 Mr
25 '16

Grenades, rifle and hand. il Sci Am S 81:82 F
5 '16

Griggs, F. L.

Etchings; reproductions. Am Inst Arch J 4:
284-9 Je '16

Grinding (ores, etc.). See Crushing; Crushing machinery; Gold milling

Grinding and polishing

Abrasive costs in snagging castings. W. T.
Montague. Foundry 44:176-7 My '16

Bufs and dollars. F. W. Hobbs. il Metal Ind
n s 14:119-20 Mr '16

Cost of grinding castings. W. T. Montague.
Iron Tr R 59:573-4 S 21 '16

Form grinding. H. W. Dunbar. Mach 23:126 O
16 '16

Grading industries. E: S. Wiard. Met & Chem
Eng 14:557-8 My 15 '16

Grinding of high speed steels. C. E. Gillett.
il Iron Tr R 59:579-81 O 5 '16

Grinding stove plate. F. W. Hobbs. Foundry
44:173 My '16

Lubricant in grinding. Mach 22:460 F '16

Methods of holding work for grinding. D. T.
Hamilton. il diags Mach 22:487-96 F '16

Overcoming chatter marks. H. W. Dunbar.
Iron Tr R 59:1101-2 N 30 '16

Patternmaker's arbor. S. L. Cook. diags Foun-
dry 43:489 D '15

Polishing fixture for shell noses. diags Mach
23:160-1 O '16

Polishing metal with clay. Sci Am S 81:381 Je
10 '16

Squaring up work on a surface grinder. D.
Baker. diags Mach 23:156 O '16

Tests of shaft grinding surface speed. H. H.
Asbridge. Iron Age 97:52 Ja 6 '16

See also Grinding machines; Machine shop
practice; Pebbles; Sand blast

Grinding machines

Automatic polishing machine by Excelsior
tool & machine co. il Iron Age 97:778-9 Mr
30 '16; Mach 22:708-9 Ap '16

Bridgeport wide-wheel grinder. il diags Mach
22:523-4 F '16; Iron Tr R 58:493 Mr 2 '16

Brown vertical surface grinder. il Mach 22:
904-5 Je '16

Cylinder head grinder. J. Lee. diags Ry Mech
Eng 90:555 N '16

David Brown & sons worm grinder. il diag
Mach 22:842-3 Je '16

Disc grinder in the pattern shop. S. L. Cook.
il Foundry 44:315 Ag '16

Double-spindle heavy grinding machine. il
Iron Age 96:1297 D 2 '15

Dumore portable grinder. il Ry Mech Eng 90:
604 N '16

Electric tramway rail grinding machine. il
Engineer 122:235 S 29 '16

Extension arm for internal grinding. il Iron
Age 98:1062 N 9 '16

Fraser universal convertible grinding machine.
il Mach 22:1087-8 Ag '16

Gardner grinder. il Metal Ind n s 14:36 Ja '16

Grinding dies on the Bryant chucking grinder.
diags Mach 22:422 Ja '16

Grinding gas plugs for shrapnel shells. il Iron
Age 96:1282-3 D 2 '15

Grinding machine for hack-saw blades. il Iron
Age 98:767 O 5 '16

Grinding machine with inclosed motor, built
by Valley City machine works. il Iron Age
98:759 O 5 '16; Iron Tr R 59:694 O 5 '16

Internal cylinder grinding machine. il Iron Age
98:985 N 2 '16

Leader center grinder. il Mach 22:337-8 D '15

Modern tool company's self-contained grind-
ing machines. il Ry Mech Eng 90:374-5 Jl
'16; Iron Age 97:1552 Je 29 '16; Iron Tr R 59:
27-8 Jl 6 '16; Mach 22:1004-6 Jl '16

Motor-driven form grinding machine. il Iron
Age 97:295 F 3 '16

New type of bench grinding machine. il Iron
Age 97:251 Ap 20 '16

Norton grinding machine, weighing 55 tons
and taking rolls 21 ft. long and 50 in. in di-
ameter. il Iron Age 96:1408-9 D 16 '15

Ott plain grinding machine. il Mach 23:176 O
'16

Pedestal and aerial grinder. il Iron Tr R 57:
1090 D 2 '15

Perkins plain cylindrical grinding machine. il
Iron Age 97:1436 Je 15 '16

Rail grinder made from scrap. il Elec Ry J 48:
545 S 23 '16

Rail grinders on the Boston Elevated rail-
way. il Elec Ry J 48:542 S 23 '16

Rivett automatic oscillating grinding machine.
il diags Mach 22:991-3 Jl '16

Special machine for grinding the ends of book
stack castings. il Foundry 44:123 Mr '16;
Same. Iron Tr R 58:765 Ap 6 '16

Special two-wheel grinding machine. il Iron
Age 97:250 Ja 27 '16

Stow motor-driven flexible grinder. il Elec R
& W Elec'n 67:1082-3 D 11 '15; Elec Ry J
46:1270 D 25 '15; Elec W 66:1389 D 18 '15;

Foundry 43:513 D '15; Iron Age 96:1365 D 9
'15; Mach 22:354-5 D '15

Unusual cylindrical grinding job. il diag Mach
22:750 My '16

Vacuum-cleaner disk grinding machine. il Iron
Age 98:708 S 28 '16

See also Grinding wheels

Safety devices

New form of grinding wheel guard. il Iron
Age 97:376 F 10 '16

Safeguarding grinding machines. P. W. Blair.
diag Metal Ind n s 13:492 D '15

Grinding machines—Safety devices—*Continued*
Safety code for the use and care of abrasive wheels. *Am Soc M E J* 38:121-4 F '16; Same. *Ry R* 58:332-5 Mr 4 '16

Grinding wheels

Grinding wheel speeds. H. W. Dunbar. *Mach* 23:49 S '16

Grinding wheels as applied to locomotive repairs. H. B. Miller; A. Sterner. *Ry Mech Eng* 90:477-8 S '16

Story of the grinding wheel. C. W. Blakeslee. *Iron Age* 97:204-6 Ja 20 '16; Same. *Sci Am S* 82:207-8 S 23 '16

Truing devices for grinding wheels. F. B. Jacobs. *il Iron Age* 98:441-2 Ag 31 '16

See also Grinding machines

Safety devices

See Grinding machines—Safety devices

Grizzlies

Chain grizzly at the Rowe mine. J. C. Barr. *il Eng & Min J* 101:599-600 Ap 1 '16

Mass screening with flat screens. E. S. Wiard. *il diag Met & Chem Eng* 14:386 Ap 1 '16

Grocery stores

Tabulated result of grocery investigation. *J Account* 21:55 Ja '16

Groins

Concrete sheet-pile groin at Long Branch, N. J. J. W. Seaman. *il diags Eng N* 75:650-1 Ap 6 '16

Holland develops new types of shore protection. *diags Eng Rec* 73:118-20 Ja 22 '16

Shore at Venice, California, best protected by permanent sea wall and low groins. *diags Eng Rec* 73:51-4 Ja 8 '16

Grooving machines. *See* Cutting machines

Grotteaux, Château des. *See* Château des Grotteaux

Grottoes. *See* Caves

Ground detectors. *See* Detectors

Ground temperature. *See* Earth temperature

Ground waters. *See* Water, Underground

Grounding. *See* Electric distribution—Grounding

Grouting

Astoria tunnel under the East river for gas distribution in New York city. J. V. Davies. *il map Am Gas Light J* 103:225-30, 244-7+ O 11-18 '15; Excerpts. *Eng & Contr* 44:448-9 D 8 '15

Concrete street railway track foundation constructed by penetration, Baltimore, Md. R. K. Compton. *il Eng & Contr* 45:334-5 Ap 5 '16

Efficient device used in grouting lock foundations. E. P. Muntz. *diag Eng & Contr* 45:180 F 23 '16

Grouting alternate holes reduces drilling time. H. A. Rands. *Eng Rec* 74:479 O 14 '16

Grouting an effective remedy for stopping leakage in tunnels and shafts. J. F. Sanborn. *il diags Eng Rec* 73:504-7, 549-51, 581-3 Ap 15-29 '16

Grouting machine for Astoria tunnel, New York city. J. V. Davies. *il Eng & Contr* 45:470-1 My 24 '16

Grouting squeegee made from old hoe. R. C. Cram. *diag Elec Ry J* 48:1065 N 18 '16; Abstract. *Eng Rec* 74:661 N 25 '16

Grouting under heavy machinery. D. H. Heron. *il Power* 43:370 Mr 14 '16

Tunnel grouting in Brooklyn end of Catskill aqueduct. O. W. Myers. *il diags Eng N* 76:196-200 Ag 3 '16

Tunnel grouting with pumps. L. G. Warren. *diags Eng N* 76:702-3 O 12 '16

Use of cement grout under pressure as an aid to excavation. J. F. Springer. *il diag Concrete* 9:118-20 O '16

Growth (plants)

Feeding a pumpkin with a sugar solution. S. L. Bastin. *il Sci Am* 114:527 My 20 '16

Grubbing. *See* Clearing of land

Gruner's law

Calculations with reference to the use of carbon in modern American furnaces. H. P. Howland. *Am Inst Min E Bul* 111:627-50 Mr '16; Same (is Gruner's ideal now tenable?). *Iron Tr R* 58:593-600 Mr 16 '16; Abstract

(Coke in the blast furnace). *Iron Age* 97:660 Mr 16 '16; Discussion. *Am Inst Min E Bul* 115:1245-51; 118:1861-2 Jl, O '16

Guaranties and sureties

Dealer and manufacturer must co-operate. G. D. Crain, Jr. *Elec R & W Elec'n* 68:686-7 Ap 15 '16

How security in business transactions sometimes slips away. E. J. Buckley. *Metal Work* 86:567 N 3 '16

Rating and guarantee of small centrifugal machinery. W. J. A. London. *Power* 44:213-15 Ag 8 '16

Responsibility of engineer and contractor. *Metal Work* 86:81-2 Jl 21 '16

Value of guarantees. H. N. Gilbert. *Elec R & W Elec'n* 68:427 Mr 4 '16

Guard rails (for highways)

New concrete guard rail. *il diags Good Roads* n s 11:138-9 Mr 4 '16

Guards. *See* Machinery—Safety devices

Guatemala

Industries and resources

Central America as an export field. G. Harris and others. *il U S Bur For & Dom Com* 113:19-50 '16

Guayaquil, Ecuador

Water supply

New water supply for Guayaquil. *il diags plan Engineer* 122:407-9, 418 N 10 '16

Guayule

Guayule and industrial preparedness. A. H. King. *il Met & Chem Eng* 15:563-6 N 15 '16

Gulaman

Substitute for gelatin found in the Philippines. *Sci Am* 114:641 Je 17 '16

Gullies. *See* Erosion

Gum arabic

Qualitative tests for gum arabic and its quantitative determination. C. E. Waters and J. B. Tuttle. *U S Bur Stand Tech Pa* 67:1-15 '16; Same cond. *J Ind & Eng Chem* 8:413-16 My '16

Gums and resins

Detection of resin in drier. E. W. Boughton. *U S Bur Stand Tech Pa* 66:1-9 '16

Ester gums or artificial resin esters. C. Ellis and L. Kabinovitz. *il diag J Ind & Eng Chem* 8:406-10 My '16

Resins in hops from various geographic localities. G. A. Russell. *J Ind & Eng Chem* 7:1033-5 D '15

Studies on the extraction of rosin from wood. R. C. Palmer and H. R. Boehmer. *il J Ind & Eng Chem* 8:695-701 Ag '16

See also Bakelite; Coumaron resin; Spruce gum

Gun carriages

Gun carriages of concrete. *il diag Concrete* 8:112 Mr '16

Gun metal

Chemist and the brass-founder. R. T. Rolfe. *il Metal Ind n s* 14:373-4, 468-9 S, N '16 (to be cont)

Manufacture of admiralty gun metal in England. H. S. Primrose. *Metal Ind n s* 14:165-7, 202-4, 248-9, 339-42 Ap-Je, Ag '16 (to be cont)

Gun recoil

Non-recoil guns for aeroplanes. *Mach* 22:1103 Ag '16

Guncotton

How guncotton is made. A. C. Chaplet. *il Sci Am S* 81:28 Ja 8 '16

Nitration of cotton. J. A. Robinson. *Textile World* 51:1309+ Mr 4 '16

Rapid method for the determination of soluble nitrocellulose in guncotton. H. C. Mallinson. *diag J Ind & Eng Chem* 8:401-2 My '16

Gunite

Covering a rock cut with gunite. N. W. McCallum. *il Ry Age* 60:901-2 Ap 21 '16

Experience with protected timber piles in tropical waters; abstract. J. P. Carlin. *Am Soc M E J* 38:91 Ja '16

Gunnery

Record gunnery by the Pennsylvania. *Sci Am* 115:296 S 30 '16

Gunnery—Continued

Speed sighting and wind deflection in artillery. G. Greenhill. *diags Engineer* 122:133-4 Ag 18 '16

See also Ballistics; Firearms; Projectiles; Telescopic sights

Gunpowder, Smokeless. *See* Smokeless powder

Guns

How guns are blown up. E. C. Crossman. *il Sci Am* 114:554-5 My 27 '16

Madsen automatic gun. *il diags Engineer* 121:211-14 Mr 10 '16

Trepanning heavy cylindrical forgings. *diags Mach* 23:47-8 S '16

See also Artillery; Bayonets; Firearms; Gun recoil; Naval guns; Pistols; Rifles

Guns (ordnance)

Anti-aircraft guns. *il Sci Am* 114:640-1 Je 17 '16

Big guns in the war. *il Sci Am* S 82:184-5 S 16 '16

Breech mechanisms for guns. *J Fr Inst* 182:60 Jl '16

Erosion of guns—the hardening of the surface. H. Fay. *il Am Inst Min E Bul* 129:2237-51 D '16

Erosion of machine-gun barrels. *il Sci Am* 115:459 N 18 '16

Evolution of big guns from the cast-iron smooth bore to the modern breech-loader. *diags Sci Am* S 82:252-3 O 14 '16

How gun pressures are measured. G. P. Jewell. *il Sci Am* 114:475 My 6 '16

Inspection and tests of Lewis machine guns. *Sci Am* 115:475-8 N 25 '16

Large naval and coast defense guns; their process of manufacture and inspection. G. H. Holden. *il diags Sci Am* S 81:248-9 Ap 15 '16

Machine gun used by the United States army. *il Sci Am* 115:125 Ag 5 '16

Machine guns; their history and construction. *diags Sci Am* S 82:204-6 S 23 '16

Making of a big gun. W. Rosenhain. *Met & Chem Eng* 14:580 My 15 '16

Modern artillery and future development. L. Cresap. *il diags Iron Age* 97:39-47 Ja 6 '16; Excerpt (Life and relining of guns). *Sci Am* S 82:39 Jl 15 '16

Sixteen-inch coast defense gun for Panama. *il Sci Am* 113:559 D 25 '15

See also Aeroplane guns; Artillery; Mountain guns; Naval guns

Gutters

Curb and gutter construction—1916; tabulation. *Munic Eng* 50:151-2 Ap '16

Practical street construction—gutters. *il Munic J* 41:98-9 Jl 27 '16

Sidewalk, curb and gutter units. *Munic J* 40:898 Je 29 '16

Sidewalks, curbs and gutters built in 1915; tabulation. *Munic J* 40:172-81, 404 F 3, Mr 23 '16

See also Pavements

Gutters (roof)

Estimating quantities in sheet metal work. *diags Metal Work* 85:813-14; 86:304-6 Je 16, S 8 '16

Features of roof gutters and leaders. B. A. Howes. *Bldg Age* 38:29-30 Je '16

Gutter problem. *diag Metal Work* 86:348 S 15 '16

Patterns for circular veranda gutters. *il diags Metal Work* 84:739-40 D 10 '15

Sheet metal work in Maine in winter-time. *il Metal Work* 85:775-6 Je 9 '16

Conductor heads

Discussion of conductor heads for roof drainage. A. M. Wolf. *diags Eng N* 75:901-3 My 11 '16

Hangers

Gutter hanger for slate roof. *diags Metal Work* 86:19-20 Jl 7 '16

Hanger for gutter. *diag Metal Work* 86:117 Jl 28 '16

Gymnasiums

Present practise in the lighting of armories and gymnasiums with tungsten filament lamps; with discussion. A. L. Powell and A. E. Oday. *il Illum Eng Soc* 10:746-65 no 8 '15

William Hall Walker gymnasium. *il plans Stevens Ind* 32:283-93 O '15

Gymnastics, Medical. *See* Mechanotherapy

Gypsum

Gypsum and its effect on embedded steel. V. G. Marani. *il Eng N* 76:229 Ag 3 '16

Gyroscope

Active gyroscope as a ship stabilizer. R. G. Skerrett. *il Sci Am* 113:533-4 D 18 '15

Gyroscopic torque apparatus. E. Rawson. *il diags Engineer* 121:334 Ap 21 '16

Recent progress with the active type of gyro-stabilizer for ships. E. A. Sperry. *Int Marine Eng* 20:542-3 D '15

Seventh award of the Scientific American medal for safety devices. W. H. Tolman. *il Sci Am* 114:171 F 12 '16

Sperry active gyroscope for stabilising ships. *il diags Engineer* 122:172-3 Ag 25 '16

Stabilising ships by means of gyroscopes. *Engineer* 122:169-70 Ag 25 '16; *Same. Sci Am* S 82:299 N 4 '16

Stabilising ships by means of gyroscopes. B. E. Millmor. *Engineer* 122:211-12 S 8 '16

Steel castings as ship stabilizers. *il Iron Age* 98:69-70 Jl 13 '16

H**Hail**

Guns that protect crops from the ravages of hailstorms. *il Sci Am* 114:557 My 27 '16

Haircloth

Finishing haircloth. *Textile World* 51:2605 My 27 '16

Halibut

From herring to halibut; strong measures necessary to keep American fishermen from being driven off the north Pacific banks. M. Woolley. *il Sci Am* 114:620 Je 10 '16

Halifax, Nova Scotia**Wharves**

Cellular type of quay wall at Halifax terminals compared with other designs. *diags Eng Rec* 73:213-15 F 12 '16

Concreting plant for Halifax ocean-terminal work. *il diags plan Eng N* 75:249-53 F 10 '16

Halifax ocean terminals. *il diags maps Eng N* 74:1118-23 D 9 '15

Large volume of concrete handled in small batches at Halifax ocean terminals. *il diags plan Eng Rec* 73:143-6 Ja 29 '16

Ocean terminals under construction expected to make Halifax an important port. *il maps Eng Rec* 73:102-5 Ja 22 '16

Railway construction for new Halifax ocean terminals. *il Eng N* 75:188-9 Ja 27 '16

Subaqueous excavation at the Halifax ocean terminals. *il diag Eng N* 75:228-9 F 3 '16

Hallet, Stephen

Stephen Hallet and his designs for the national capitol, 1791-94. W. Bennett. *Am Inst Arch J* 4:290-5, 324-30, 376-83, 411-18 Je, Ag-O '16

Halogen salts

Changes in volume upon solution in water of the halogen salts of the alkali metals. G. P. Baxter and C. C. Wallace. *Am Chem Soc J* 38:70-105 Ja '16

Densities and cubical coefficients of expansion of the halogen salts of sodium, potassium, rubidium and cesium. G. P. Baxter and C. C. Wallace. *Am Chem Soc J* 38:259-66 F '16

Halogens

Detection and determination of halogens in organic compounds. I. Drogin and M. A. Rosanoff. *Am Chem Soc J* 38:711-16 Mr '16

Halogenation: bromination of hydrocarbons by means of bromine and nitric acid. R. Lal Datta and N. R. Chatterjee. *Am Chem Soc J* 38:2545-52 N '16

Halogenation; chloric acid as a reagent in organic chemistry. R. Lal Datta and J. K. Choudhury. *Am Chem Soc J* 38:1079-86 My '16

Halogenation; chlorination with aqua regia. R. Lal Datta and F. V. Fernandes. *Am Chem Soc J* 38:1809-13 S '16

Halogens—Continued

Halogenation; the formation of chloropierin and tetrachloroquinone by the action of aqua regia on organic substances. R. Lal Datta and N. R. Chatterjee. *Am Chem Soc J* 38:1813-21 S '16

Halos (meteorology)

More ignorance about halos. *Sci Am* 115:432 N 11 '16

Hamilton, Ontario**Hotels**

Royal Connaught hotel, il plan Arch & Bldg 48:130-3 Ag '16

Hammer drills. See Rock drills**Hammers**

Formula to be recommended for use for a soft hammer. G. C. Holder. *Metal Ind n s* 14:247 Je '16

Friction-driven drop hammer. il diag Engineer 121:204 Mr 3 '16

Vulcan post hammer. il Mach 22:349 D '15; *Ry Mech Eng* 90:49 Ja '16

See also Pneumatic hammers; Steam hammers

Hammers, Pneumatic. See Pneumatic hammers**Hand, Artificial. See Artificial limbs****Hand railing. See Railings****Handicraft**

See also Manual training

Handkerchiefs

Weaving of cotton and silk border handkerchiefs. il *Textile World* 51:4829+ N 11 '16

Handling, Mechanical. See Mechanical handling**Harbors**

Building a front door on the Philippines. M. Woolley. il *Sci Am* 115:431+ N 11 '16

Development of the port of New Orleans. F. J. Springer. il *Sci Am* 115:111 Ag 5 '16

Docks, harbours, and waterways in 1915. Engineer 121:9-10, 27 Ja 7-14 '16

First story of Jamaica bay improvement completed. map *Eng Rec* 73:392-3 Mr 18 '16

Halifax ocean terminals. il diags maps *Eng N* 74:1118-23 D 9 '15

Harbour and coast defence works at Alexandria, Egypt. D. E. Lloyd-Davies. Engineer 120:612-13 D 24 '15

Large suction dredges depend on high velocity for extraordinary output. il diags plans *Eng Rec* 73:517-20 Ap 15 '16

See also Breakwaters; Docks; Dredges; Freight handling; Jetties; Piers; Ports; Terminals; Wharves

Harbors, Free. See Free harbors**Hardening**

Method of local hardening. P. Cyr. diags Mach 22:512 F '16

Necking parts to be hardened. L. Fay. diags Mach 22:796-7 My '16

Vickers surface-hardening process. *Am Soc M E J* 38:1039-40 D '16

See also Case hardening; Hardness; Steel, Hardening of

Hardening of steel. See Case hardening; Steel, Hardening of**Harding mill**

Comparative test of the Marathon, Chilean and Harding mills. F. C. Blickensderfer. il flow sheet *Am Inst Min E Bul* 116:1333-48 Ag '16; Discussion. 120:2184-97 D '16

Flotation concentration at Anaconda. Mont. F. Laist and A. E. Wiggin. diags *Am Inst Min E Bul* 111:568-70 Mr '16; Same (Regrinding at Anaconda). *Eng & Min J* 101:480 Mr 11 '16

Grinding brass ashes in the conical ball mill. A. F. Taggart and R. W. Young. il *Am Inst Min E Bul* 110:435-42 F '16; Same. *Iron Tr R* 58:440-3 F 24 '16; Same. *Foundry* 44:102-5 Mr '16

Hardness

Apparatus for determining hardness of metals. *J Fr Inst* 182:527 O '16

Brinell meter for hardness tests. il Mach 22: 818-19 My '16; *Foundry* 44:250 Je '16

Comparison of five methods used to measure hardness. R. P. Devries. il diag *U S Bur Stand Tech Pa* 11:1-27 '12

Efficiency of tool steels. J. O. Arnold. *Iron Age* 97:1207 My 18 '16; Same. *Iron Tr R* 59:21 J1 6 '16; Same. *Sci Am S* 82:71 J1 29 '16; Same, with discussion. Engineer 121:397-8 My 12 '16

Hardness tests of copper-zinc alloys. D. Meneghini. il *Iron Tr R* 57:1240 D 23 '15

Improvements in Brinell hardness testing machines. il *Met & Chem Eng* 14:58-60 Ja 1 '16

Improvements in the technique of Brinell hardness determinations. il *Met & Chem Eng* 14: 611-12 My 15 '16

Portable hydraulic hardness testing machine. il *Met & Chem Eng* 14:612 My 15 '16

Testing hardness of rifle parts. A. F. Shore. il Mach 22:857-8 Je '16

Testing non-ferrous metals for hardness. H. Friedmann. Mach 22:1026-8 Ag '16; Abstract. *Am Soc M E J* 38:764 S '16

Hardware

American hardware in South America. *Sci Am* 115:425-6 N 4 '16

Australian markets for American hardware. W. C. Downs. il *U S Bur For & Dom Com misc ser* 42:1-105 '16

Markets for American hardware in Argentina, Uruguay and Paraguay. A. Hale. *U S Bur For & Dom Com misc ser* 43:1-64 '16

Markets for American hardware in Chile and Bolivia. V. L. Havens. il *U S Bur For & Dom Com misc ser* 41:1-190 '16

Peruvian markets for American hardware. il *U S Bur For & Dom Com misc ser* 39:1-64 '16

See also Bolts and nuts; Nails

Harmonic analysis

Henrici harmonic analyzer and devices for extending and facilitating its use. D. C. Miller. il diags *J Fr Inst* 182:285-322 S '16

Harmonic synthesizer

32-element harmonic synthesizer. D. C. Miller. bibliog il diags *J Fr Inst* 181:51-81 Ja '16

Harrisburg, Pennsylvania**Bridges**

Building second half of the Susquehanna bridge. il *Eng N* 76:764-6 O 19 '16

New Susquehanna river bridge at Harrisburg. il diags *Ry Age* 60:501-3 Mr 17 '16

Susquehanna concrete viaduct built in halves. il diags *Eng N* 75:537-40 Mr 23 '16

Public works

Improvement of river banks. F. Gannett. il *Munic Eng* 50:44-6 F '16

Low concrete dam at Harrisburg across Susquehanna river. J. D. Justin. il diags *Eng N* 74:1250-3 D 30 '15

Hartford, Connecticut**Water supply**

Compensation in kind involved in Hartford water case. C. M. Saville. *Eng N* 76:246-7 Ag 10 '16

Harvard university

Design of new Germanic museum required solution of many special problems. C. R. Perry. diags *Eng Rec* 73:443-4 Ap 1 '16

Reinforced-concrete frame of new Germanic museum at Harvard is unusually complex. il diags plan *Eng Rec* 73:440-2 Ap 1 '16

Hats

How felt hats are made. *Sci Am S* 82:303 N 4 '16

Haulage

Boiler loaded on two trailers for 130-mile trip in Rockies. G. S. Young. il *Eng Rec* 74:481 O 14 '16

Cable system handles dump wagons on heavy grades. J. Owen. il plan *Eng N* 76:272-3 Ag 10 '16

Centrally controlled electric haulage systems. F. E. Woodford. il *Eng Soc W Pa* 31:584-97 O '15; Same cond. *Sci Am S* 82:40-2 J1 15 '16; Abstract. *Eng M* 50:620-1 Ja '16; Discussion. *Eng Soc W Pa* 31:598-608 O '15

Construction railway vs. a motor truck road to the Hetch Hetchy dam. *Eng & Contr* 46: 122-3 Ag 9 '16

Haulage—*Continued*

- Economy of rail haulage at Hetch Hetchy. N. A. Eckart. Eng & Contr 46:423-4 N 15 '16
- Handling and hauling materials and water supply; committee report. Concrete 8:105-6 Mr '16
- Hauling broken stone for road construction, Rockford, Ill. il Eng & Contr 46:3 J1 5 '16
- Hauling California lead ores with a Yuba tractor. il Eng & Min J 101:554 Mr 25 '16
- Hauling structural steel in New York city. il Eng & Contr 46:8 J1 5 '16
- Motor trucks for earth excavation for the public service terminal, Newark, N. J. il Eng & Contr 46:6 J1 5 '16
- Railway to haul 225,000 tons to Hetch Hetchy dam. Eng Rec 74:138 J1 29 '16
- Shoe for hauling pipe or timbers. R. S. Bon-sib. il Eng & Min J 102:314-5 Ag 19 '16; Same. Coal Age 10:387 S 2 '16
- Snatching wagons in two lifts. diag Eng N 76:560 S 21 '16
- Snatching wagons out of pits. J. F. Fouhy. il Eng N 76:124 J1 20 '16
- Wet weather advice to inexperienced "dirt movers." Eng & Contr 46:422 N 15 '16
- See also* Conveying machinery; Freight handling; Mine haulage; Motor trucks; Motor trucks in freight handling; Railroads, Industrial; Tractors; Transportation

Cost

- Comparative costs of hauling gravel by team and by tractor for road work. O. L. Kipp. Eng & Contr 45:327-9 Ap 5 '16; Same. Munic Eng 50:138-9 Ap '16; Abstract. Eng N 75:567-8 Mr 23 '16
- Cutting haulage cost in road work to seven cents per ton-mile. G. N. Lamb. Eng & Contr 46:14 J1 5 '16
- Economical gravel production and hauling for road work. il Concrete 9:66 Ag '16
- How a contractor handles state highway work. D. G. Bevis. Munic Eng 50:167-8 Ap '16
- Motor truck operation at Mammoth Collins mine, Shultz, Ariz. W. G. McBride. Am Inst Min E Bul 115:1253-6 J1 '16; Same cond. Eng & Contr 46:160-2 Ag 16 '16; Excerpt (Long distance haulage with motor trucks). Eng N 76:271 Ag 10 '16; Excerpt. Eng & Min J 102:709 O 14 '16
- Reducing hauling costs in pavement construction at Pittsburg, Kan. il Eng & Contr 46:104 Ag 2 '16
- Truck and trailer move 60-ton steam shovel economically. E. N. Bryan. il Eng Rec 73:812 Je 17 '16
- See also* Mine haulage—Cost

Havana, Cuba**Architecture**

- Bank of Nova Scotia; views and plan. Arch Rec 39:46-8 Ja '16

Street railroads

- Overhead line problems in Havana. il Elec Ry J 48:367-8 Ag 26 '16

Havana (Cuba) electric railway, light & power company

- Casting station busbar compartments in place. il Elec W 68:179-80 J1 22 '16
- Concrete cells for circuit breakers and bus-bars. C. H. Sanderson. il diags Elec W 67:1402-4 Je 17 '16

Hawaiian Islands

- Hawaiian blowholes. V. MacCaughey. il Sci Am 118:522 D 11 '15

Hay army bill. See United States—Army**Hay fever**

- Hay fever; its cause, treatment and prevention. W. Scheppegrell. Sci Am S 82:106-7 Ag 12 '16
- What plants are responsible for hay fever. W. Scheppegrell. il Sci Am 115:325 O 7 '16

Headframes

- Headframe for inclined shaft. F. W. Foote. diag Eng & Min J 102:303 Ag 12 '16; Same. Coal Age 10:339 Ag 26 '16
- Small timber headframes. il diags Eng & Min J 101:645 Ap 8 '16
- Tioga headframe. diags Eng & Min J 102:788 O 28 '16

Heading machines

- Ajax two-blow header for hot work. il Mach 22:429-31 Ja '16

Headlights

- Detachable headlight dimmer of novel design. il Sci Am 114:446 Ap 29 '16
- Headlights recessed in car roof. J. W. Brown. il Elec Ry J 48:501 S 16 '16
- Incandescent headlights for street railway and locomotive service. P. S. Bailey. il diags Gen Elec R 19:638-45 J1 '16
- Parabolic mirror; with discussion. F. A. Benford, jr. diags Illum Eng Soc 10:905-31 no 9 '15
- Scientific headlighting. L. B. Gawthrop. Coal Age 10:382-3 S 2 '16

See also Automobiles—Lighting; Reflectors

Headlights, Automobile. See Automobiles—Lighting**Headlights, Locomotive. See Locomotive headlights****Health boards**

- Education of public to need of health laws. F. Hansen. Eng Rec 74:77 J1 15 '16
- State board of health control of sewage works; report of committee of American public health association; abstracts. Eng N 76:859-60 N 2 '16; Eng Rec 74:582-3 N 11 '16
- Wisconsin health board to help plumbers. F. R. King. Metal Work 85:324 Mr 3 '16

See also Public health

Health insurance. See Insurance, Health**Health laws. See Public health laws****Health posters**

- Educational sanitary posters used by Chicago department of health. Dom Eng 74:46 Ja 8 '16

Heart

- Heart in warfare. Sci Am S 81:196 Mr 25 '16

Heat

- See also* Animal heat; Boiling points; Calorimeters and calorimetry; Combustion; Expansion; Flames; Heating; Insulation (heat); Pyrometers and pyrometry; Radiation; Steam; Temperature; Thermochemistry; Thermodynamics; Waste heat

Heat, Waste. See Exhaust steam; Waste heat**Heat conductivity**

- Comparison of heat insulators. U S Bur Stand Circ 55:58-9 '15; Excerpt. Heat & Ven 12:46-7 D '15; Excerpt. Eng & Min J 101:1020 Je 10 '16
- Covering steam pipes. J. C. Hawkins. Power 43:50 Ja 11 '16
- Electrically heated bomb furnace. D. F. Calhane and H. A. Lavenne. il diags Met & Chem Eng 14:140-3 F 1 '16
- Experiments on the flow of heat in metal sheets; abstract. S. Skinner. Am Soc M E J 38:604 J1 '16
- Heat conduction and the engineer. R. W. King. Sibley J 30:378-81 Ag '16
- Heat insulating properties of commercial steam pipe coverings. L. B. McMillan. il diags Am Soc M E J 38:8-16 Ja '16; Abstract. Heat & Ven 13:28-35 Ja '16; Abstract. Power 43:469-74 Ap 4 '16; Discussion. Am Soc M E J 38:140-2 F '16
- How coverings prevent loss of heat. il Iron Tr R 59:1004-6 N 16 '16
- How much will we save? C. W. Hubbard. Power 43:248-9 F 22 '16
- See also* Heat transmission

Heat convection

- Linear hot-wire anemometer and its applications in technical physics. L. V. King. il diags J Fr Inst 181:1-25 Ja '16

Heat engines

- Reversed heat engine as a drying machine. P. J. Fox. J Ind & Eng Chem 7:1065-9 '15; Abstract. Am Soc M E J 38:97-8 Ja '16
- See also* Air engines; Gas and oil engines; Steam engines; Thermodynamics

Heat flow. See Heat conductivity**Heat measurement. See Calorimeters and calorimetry; Pyrometers and pyrometry; Thermocouples; Thermometers**

Heat radiation

- Apparatus for the study of heat radiation. J. D. Hoffman, *il Am Soc Heat & V E* 21: 494-8 '15; Same cond. *Heat & Ven* 12:28-30 O '15; Discussion. *Am Soc Heat & V E* 21: 498-500 '15
- Firebox efficiency. J. T. Anthony, *Ry R* 59: 581-5 O 28 '16
- Swiss tests of gas-fires. E. Ott, *diags plan Am Gas Light J* 104:131-5 F 28 '16
- See also Heating—Tables, calculations, etc.

Heat transmission

- Air leakage through windows. S. C. Voorhees and H. C. Meyer, jr. *Heat & Ven* 13:36 F '16
- Capacity and economy of multiple evaporators; abstracts. E. W. Kerr, *diags Am Soc M E J* 38:315, 539-48 Ap, Jl '16; *Met & Chem Eng* 14:603-8 My '16; Discussion. *Am Soc M E J* 38:548-51 Jl '16
- Co-efficients of heat transmission established by the Austrian engineers. A. A. Jones, *diags Heat & Ven* 13:36-9 N '16
- Coil sizes for hot water storage tanks. *diags Metal Work* 85:645-6 My 12 '16
- Computing the heat loss from buildings. C. L. Hubbard, *Dom Eng* 74:261-2, 293-4, 327-8 F 26-Mr 11 '16
- Determination of radiator sizes for hot water heating plants. F. Wegelius, *Heat & Ven* 13:24-7 Ja '16
- Effect of barometric pressure on temperature rise of self-cooled stationary induction apparatus. V. M. Montsinger, *il diags Am Inst E E Pro* 35:451-78 Ap '16
- Effect of soot on heat transmission. J. E. Bell, *Power* 44:129 Jl 25 '16
- Effect of velocity and humidity of air on heat transmission through building materials. J. A. Moyer, *diags Heat & Ven* 13:15-21 F '16
- Establishment of a standard for transmission losses from buildings of all constructions. R. P. Bolton, *diag Am Soc Heat & V E* 21:552-8 '15; Same. *Heat & Ven* 12:19-23 Jl '15; Same. *Dom Eng* 73:264-6 N 27 '15; Same cond. *Metal Work* 84:373+ S 17 '15; Discussion. *Am Soc Heat & V E* 21:558-62 '15
- Establishment of standard methods of proportioning direct radiation and standard sizes of steam and return mains. J. A. Donnelly, *diags Am Soc Heat & V E* 21:528-44 '15; Same. *Dom Eng* 72:366-8; 73:2-4 S 25-O 2 '15; Discussion. *Am Soc Heat & V E* 21:541-51 '15
- Flow of heat from solids to air. E. E. Snyder, C. S. Robinson and W. K. Lewis, *diag J Ind & Eng Chem* 8:515-16 Je '16; Abstract. *Am Soc M E J* 38:604 Jl '16
- Government experiments on the transmission of heat through walls. H. C. Dickinson, *Heat & Ven* 13:38-9 S '16
- Heat distribution in warm-air furnace. J. R. Allen, *diags Metal Work* 85:150-2 Ja 28 '16
- Heat loss from underground steam mains measured by melted snow. T. W. Reynolds, *Elec W* 67:497-8 F 26 '16
- Heat loss through wall. *diag Metal Work* 85: 228 F 11 '16
- Heat transmission; an economical consideration of fuel economy and temperature regulation. *Sci Am S* 80:411 D 25 '15
- Heat transmission through boiler tubes. H. Kreisinger and J. F. Barkley, *diags U S Bur Mines Tech Pa* 114:1-33 '15; Abstract. F. G. Baender, Sibley J 30:202-4 Mr '16; Excerpt. *Elec W* 67:323-4 F 5 '16; Excerpts. *Engineer* 122:10 Jl 7 '16
- Heat transmission through building materials. J. R. Allen, *il diags Heat & Ven* 13:20-4 Ag '16; Excerpts. *Eng & Contr* 47:175-6 Ag 23 '16; Same. *Metal Work* 86:490-2 O 20 '16; Excerpts. *Eng & Contr* 47:175-6 Ag 23 '16
- Heat transmission through various types of sash and the causes and prevention of internal condensation in double-glazed sash. A. N. Sheldon, *il Am Soc M E J* 38:890-4 N '16
- How to figure heating requirements. *Metal Work* 85:248-9 F 18 '16
- Loss of heat from steam-heated surfaces; abstracts. J. E. Petavel, *Am Soc M E J* 38:98-9 Ja '16; *Iron Age* 97:197 Ja 20 '16; *Metal Work* 85:284 F 25 '16

- Measurement of the temperature drop in blast-furnace hot-blast mains. R. J. Wysor, *diag Am Inst Min E Bul* 106:2161-70 O '15; Same. *Iron Tr R* 58:435-7+ F 24 '16; Abstract. *Iron Age* 96:869 O 14 '15; Discussion. *Am Inst Min E Bul* 113:909-17 My '16
- Methods of testing warm air furnaces. R. W. Davenport, *diags Metal Work* 86:104-5 Jl 28 '16
- New apparatus for testing heat losses. A. H. Barker, *diag Heat & Ven* 13:34-6 Mr; 40 My '16
- New radiation coefficients. W. Jones, *Heat & Ven* 12:22-6 D '15
- Newly collected data on heating and ventilation. E. B. Johnson, *diags Heat & Ven* 13: 19-24 N '16
- Performance and design of high vacuum surface condensers. G. H. Gibson and P. A. Bancel, *diags Am Soc M E J* 38:23-7 Ja '16; Discussion. 38:144-6 F '16
- Properties of balsa wood; abstract. R. C. Carpenter, *Am Soc M E J* 38:590-1 Jl '16
- Proportioning of surface condensers. G. A. Orrok, *Am Soc M E J* 38:864-6 N '16
- Study of heat transmission in steam boilers. V. R. Gage, *diags Sibley J* 31:29-39 N '16
- Transmission of heat and flow of water in pipe. *Dom Eng* 75:199-200 My 13 '16
- Transmission of heat in boilers. E. R. Hedrick and E. A. Fessenden, *Am Soc M E J* 38:619-22 Ag '16; Abstract. *Power* 43:674 My 9 '16; Discussion. *Am Soc M E J* 38:622-5 Ag '16
- See also Boilers; Heat conductivity; Heat convection; Heat radiation; Insulation (heat); Radiators

Heat treatment

- Muntz metal; data on the heat treatment. G. C. Holder, *Metal Ind n s* 14:292 Jl '16

Heat treatment of steel. See Steel, Heat treatment of**Heat unit**

- Adoption of proper heat unit standard improves strategic position gas holds in illuminating field. *Am Gas Light J* 105:335-6 N 20 '16
- Heat unit simply explained. *Metal Work* 86:174 Ag 11 '16

Heaters

- Developing full power of heater. *Metal Work* 85:408 Mr 24 '16
- Heater testing station, Utica, N. Y. *il Metal Work* 85:77 Ja 7 '16
- Supplementary tests of a magazine heater. E. H. Lockwood, *Heat & Ven* 13:50 Ag '16
- Tests of a magazine steam heater. E. H. Lockwood, *diag Heat & Ven* 13:18-20 My '16
- Unit plant hot blast heaters. *il Heat & Ven* 13:48 Je '16

See also Automobiles—Heaters; Electric heaters; Feed water heaters; Gas heaters; Gas water heaters; Gravel heaters; Hot water heaters; Solar heaters; Water heaters

Heaters, Electric. See Electric heaters**Heaters, Feed water.** See Feed water heaters**Heaters, Solar.** See Solar heaters**Heating**

- Combination warm air and hot water system. *plans Metal Work* 86:404-5 S 29 '16
- Common sense in heating buildings. B. Thur, *Metal Work* 86:616-18 N 17 '16
- Comparative effects of wind and sunshine on heating buildings. D. B. Prentice, *Heat & Ven* 13:23-4 Je '16
- Development in heating and ventilating industrial buildings. E. L. Hogan, *diags Am Soc Heat & V E* 21:246-53 '15; Same. *Metal Work* 83:263-5 F 12 '15; Same. *Dom Eng* 70:239-41 F 20 '15; Discussion. *Am Soc Heat & V E* 21: 253-5 '15
- Efficient heating for institutional groups. A. L. Baum, *plan Heat & Ven* 13:51-3 N '16
- Engineering for the household; ventilation, window leakage, furnace efficiency, light absorption. *diags Eng M* 50:929-32 Mr '16
- Experiences in steam and water heating. C. L. Hubbard, *diags Dom Eng* 76:390-2, 422-4, 459-60 S 16-30 '16
- Furnace heating with natural gas fuel. R. S. Thompson, *il diags plans Metal Work* 85:273-6 F 25 '16

Heating—Continued

- Heat balance of the human body. M. W. Franklin. Heat & Ven 12:45-6 D '15
- Heating and ventilating conditions in a large office building. C. E. A. Winslow and G. F. Maglott. Am Soc Heat & V E 21:260-71 '15; Same. Heat & Ven 12:26-31 F '15; Discussion. Am Soc Heat & V E 21:271-3 '15
- Heating and ventilating Newark theater, il plans Metal Work 85:97-101 Ja 14 '16
- Heating and ventilating of churches. H. L. Alt. diags Brickb 24:311-14 D '15
- Heating low cost houses neglected. Metal Work 85:550 Ap 21 '16
- Heating value of fuels. U S Bur Stand Circ 56:55-67 '15; Excerpt. Heat & Ven 12:47 D '15
- High fuel consumption due to poor installation. Metal Work 86:317 S 8 '16
- Hot-water and steam heating. I. N. Evans. il Power 43:545-7 Ap 18 '16
- Lecture course on elements of heating. C. A. Fuller. diags Metal Work 81:34-5, 209, 281-2, 338-9, 395-6, 460-1, 651-2, 686-7; 82:100; 83:927; 84:212-13, 303-4, 430-1, 583-1, 741-2, 833; 85:149, 434, 614-16, 774; 86:1-3, 138-9, 312 Ja 2, 30, F 13, 27, Mr 13, 27, My 15-22, Jl 24 '14, Je 25, Ag 13, S 3, O 1, N 5, D 10, 31 '15, Ja 28, Mr 31, My 5, Je 9, Jl 7, Ag 4, S 8 '16
- Methods adopted for heating. Goodyear Heights, Akron, O. il plans Metal Work 85:881-2; 86:69-70 Je 30, Jl 21 '16
- Physics of heating and ventilation. C. L. Hubbard. Dom Eng 76:118-20, 184-6, 254-5 Jl 22, Ag 5, 19 '16
- Plans for heating small buildings. G. Barr. Metal Work 86:641 N 24 '16
- Points to be considered in selecting a heating system. C. L. Hubbard. diags Dom Eng 73:328-30 D 11 '15
- Primitive heating in some foreign countries. Dom Eng 73:362 D 18 '15
- Principle of Bernoulli and its relation to heating and ventilating of a building. S. R. Williams. diags Heat & Ven 13:13-15 F '16
- Residence heated eight years by wood furnace. plans Metal Work 85:185-6 F 4 '16
- Selection of a heating system. C. L. Hubbard. Brickb 25:17-20 Ja '16
- Solving the heating problem and securing the power business. A. C. Shepherd. diags Elec R & W Elec'n 68:1032-3 Je 3 '16
- Theory and practice in warm-air heating. Metal Work 83:661+, 772-3, 842-3; 84:47-9, 109-10, 184-5, 203-4, 242-3, 310-11, 329+, 451-3, 558-9, 699-700; 85:221-2+ My 7, 28, Je 11, Jl 9, 23, Ag 6-20, S 3-10, O 8, 29, D 3 '15, F 11 '16
- What is the best type of heating system? Heat & Ven 13:45-8 Ag '16
- See also* Boilers, Heating; Car heating; Electric heating; Factories—Heating and ventilation; Fireplaces; Fuel; Furnaces, Hot air; Gas heating; Heaters; Heating from central stations; Heating pipes; Hot water heating; Radiation; Radiators; School-houses—Heating and ventilation; Steam heating; Stoves; Ventilation

Cost

- Cost of heating buildings. G. W. Martin. Power 43:235 F 15 '16; Same. Eng & Min J 101:986 Je 3 '16
- Cost of making steam for building heat. Elec W 67:495-7 F 26 '16
- Cost of operating steam heating systems. H. M. Hart. Metal Work 85:518-19 Ap 14 '16
- Data on operating costs. G. W. Martin. Heat & Ven 12:42-3 D '15; 13:35 F '16
- House heating by gas; report. Am Gas Light J 104:83-6 F 7 '16
- House heating by gas; with yearly operating costs in forty-seven buildings using natural gas. F. R. Hutchinson. il Heat & Ven 13:19-33 Mr '16
- Operating costs. S. R. Lewis. Am Soc Heat & V E 21:37-42 '15; Same cond. Heat & Ven 12:20-2 Ag '15
- Operating costs of steam and furnace heating plants. Heat & Ven 13:49-50 Ja '16
- Operation of warehouse heating plant of Merck & company, Rahway, N. J. J. F. Cyphers. Heat & Ven 13:35 F '16

- Survey of operating costs in thirteen school buildings. J. M. Cushman. Heat & Ven 13:25-34 N '16

Estimates

- Aid for merchant mechanics in office work. plans Metal Work 86:218-9, 316-7 Ag 25, S 15 '16
- Steam and hot water estimating methods. E. Stern. Metal Work 85:11-12 Ja 7 '16

Laws and regulations

- Furnace installation ordinance, Columbus, Ohio. Metal Work 85:636-8 My 12 '16
- Indirect heating practically prohibited. Metal Work 86:13 Jl 7 '16
- New heating and ventilating requirements for public school buildings in Illinois. Heat & Ven 13:46-7 F '16
- Requirements for model compulsory heating and ventilation laws; promulgated by the American society of heating and ventilating engineers. Heat & Ven 13:32-7 Ap '16

Tables, calculations, etc.

- Amount of heat in water and steam. W. E. Gray. Metal Work 86:556-8, 613, 672 N 3, 17, D 1 '16
- Applying heat unit to furnace design. R. W. Noland. plans Metal Work 85:843-4 Je 23 '16
- Best position for a radiator in a room. il plan Heat & Ven 13:27-31 S '16
- Can we locate the neutral zone in heated buildings? J. J. Blackmore. diags Am Soc Heat & V E 21:501-12 '15; Same. Heat & Ven 12:27-32 N '15; Discussion. Am Soc Heat & V E 21:512-18 '15
- Chart for figuring amount of coal required per season for steam and hot water heating. Heat & Ven 13:54 S '16
- Co-efficients of heat transmission established by the Austrian engineers. A. A. Jones. diags Heat & Ven 13:36-9 N '16
- Comparison of various methods of figuring duct and flue sizes. H. L. Alt. diags Heat & Ven 13:29-37 O; 49 N '16
- Computing radiation for steam and hot water heating systems. C. L. Hubbard. diags Dom Eng 74:359-60, 386-8 Mr 18-25 '16
- Computing the heat loss from buildings. C. L. Hubbard. Dom Eng 74:261-2, 293-4, 327-8 F 26-Mr 11 '16
- Determination of radiator sizes for hot water heating plants. F. Wegelius. charts Heat & Ven 13:11-19 Ap '16
- Determining pipe sizes for furnace heating. Metal Work 86:592-3 N 10 '16
- Determining pipe sizes in hot water system. F. E. Giesecke. diags Metal Work 84:705-10 D 3 '15
- Direct heating in store and lodge building. C. L. Hubbard. plans Metal Work 85:885-7 Je 30 '16
- Elements of hot-water heating. G. E. Reid. il Power 42:802-4 D 7 '15
- Engineering data for designing furnace heating systems; with discussion. A. C. Willard. Am Soc Heat & V E 21:519-27 '15
- Establishment of a standard for transmission losses from buildings of all constructions. R. P. Bolton. diag Am Soc Heat & V E 21:552-8 '15; Same. Heat & Ven 12:19-23 Jl '15; Same. Dom Eng 73:264-6 N 27 '15; Discussion. Am Soc Heat & V E 21:558-62 '15
- Establishment of standard methods of proportioning direct radiation and standard sizes of steam and return mains. J. A. Donnelly. diags Am Soc Heat & V E 21:528-44 '15; Same. Dom Eng 72:366-8; 73:2-4 S 25-O 2 '15; Discussion. Am Soc Heat & V E 21:544-51 '15
- Figuring direct-indirect radiation. Metal Work 85:713 My 26 '16
- Figuring heating requirements for offices. Metal Work 86:173-4 Ag 11 '16
- Flow of steam in pipes. A. G. King. Dom Eng 75:160-1 My 6 '16
- Furnace heating system in Rochester house. H. L. Alt. il plans Metal Work 85:19-22 Ja 7 '16
- Furnace system rearranged successfully. diags plans Metal Work 85:308-10 Mr 3 '16
- Furnaces heat houses built in blocks. J. Wilmore. diag plan Metal Work 86:646-7 N 24 '16

Heating—Tables, calculations, etc.—*Continued*
 Garage heated by furnace on same level. plan Metal Work 85:254-5 F 18 '16
 Heating a basement store. plan Metal Work 85:319-20, 355 Mr 3-10 '16
 Heating a Chicago office building. S. M. Bushnell. il diag Heat & Ven 13:21-6 F '16
 Heating a Hoboken moving picture theater. il plan Metal Work 85:512-13 Ap 14 '16
 Heating by forced circulation of hot water in textile mills. A. G. Duncan. Am Soc M E J 38:157-201 Mr '16; Same. Power 43:128-31 Ja 25 '16; Same. Textile World 51:699, 701, 703, 777 Ja 15 '16; Same cond. Metal Work 84:770-3 D 17 '15; Discussion. Am Soc M E J 38:201-2 Mr '16
 Heating with temperature at 40 below zero. J. G. Sorgen. diags Metal Work 86:269-70 S 1 '16
 High pressure steam heating. Metal Work 85:525 Ap 14 '16
 Hot-water heating in Michigan residence. il plans Metal Work 85:339-41 Mr 10 '16
 How much will it cost to heat 700 sq. ft. of radiation. Dom Eng 74:44 Ja 8 '16
 How to figure heating requirements. Metal Work 85:248-9 F 18 '16
 How to figure radiation for a drying room. Dom Eng 75:40 Ap 8 '16
 Indirect and direct hot-water system. il plans Metal Work 85:493-7 Ap 14 '16
 Meeting indoor humidity requirements. Heat & Ven 12:38-9 D '15
 New empirical formulae for hot water heating; with pipe sizes for two-pipe systems. J. H. Keller. Heat & Ven 13:16-19 Mr '16
 New radiation coefficients. W. Jones. Heat & Ven 12:22-6 D '15
 Newly collected data on heating and ventilation. E. B. Johnson. diags Heat & Ven 13:19-24 N '16
 Novel furnace system in private sanatorium. plans Metal Work 85:736-7 Je 2 '16
 Operating costs. S. R. Lewis. Am Soc Heat & V E 21:37-42 '15; Same cond. Heat & Ven 12:20-2 Ag '15
 Pipe sizes for warm-air furnace heating. M. W. Ehrlich. diag Metal Work 86:455-7, 521-2 O 13, 27 '16
 Positive fresh warm-air system for school at Canton, Pa. il plans Metal Work 85:815-18 Je 16 '16
 Problem in heating at 40 below zero. diag Metal Work 85:860-1; 86:21 Je 23, JI 7 '16
 Proper ratio of economy coils for different kinds of heating systems. W. J. Kline. Power 43:930 Je 27 '16
 Radiation supplied by different-sized steam lines. Heat & Ven 13:39-40 Ap '16
 Rational methods applied to the design of warm air heating systems. R. E. Lynd. plans Am Soc Heat & V E 21:389-403 '15; Same. Metal Work 83:192-7 Ja 29 '15; Discussion. Am Soc Heat & V E 21:404-9 '15
 Space occupied by air in radiators. diag Metal Work 86:363-7, 439 S 22, O 6 '16
 Theory and practice in warm-air heating. diags plans Metal Work 85:347-9 Mr 10 '16
 Trunk line furnace system in New England. il plans Metal Work 85:401-3 Mr 24 '16
 Warm-air furnace to heat railroad station. plan Metal Work 85:73-4 Ja 7 '16
 Warm air furnaces heat manufacturing plant. il Metal Work 85:93-4 Ja 14 '16
 Window leakage and radiation estimates. S. F. Voorhees and H. C. Meyer, jr. il diags Heat & Ven 13:25-31 Ap '16; Same cond. Metal Work 85:127-9 Ja 21 '16
See also Heat transmission; Heating pipes; Steam flow
Heating, Electric. *See* Electric heating
Heating, Hot water. *See* Hot water heating
Heating, Steam. *See* Steam heating
Heating and ventilating engineers, American society of. *See* American society of heating and ventilating engineers
Heating association, National district. *See* National district heating association
Heating boilers. *See* Boilers, Heating
Heating contracts
 Assignability of heating contract. Heat & Ven 13:47-8 F '16

Contractors' guarantee of heating installations. Heat & Ven 13:52-3 Ja '16
 Relations between the architect and the master steam fitter. D. K. Boyd. Heat & Ven 13:28-33 Ag '16

Heating from central stations
 Central station heating. E. T. Gifford. Heat & Ven 13:43 F '16
 Central station heating in Wadena, Minn. L. A. Larsen. Heat & Ven 13:32-3 My '16
 Central-station heating plant operation in Milwaukee. O. M. Rau. il plan Elec W 68:218-20 JI 2 '16
 Central station heating the method of the future. A. Williams. Heat & Ven 13:13-16 Ag '16
 Central station steam heating by Miles City, Montana, municipal plant. G. C. Pruett. Munic Eng 51:2-4 JI '16
 Connecting detached buildings with central heat supply. L. Jones. Power 44:559-60 O 17 '16
 Co-operating with the consumer. W. J. Baldwin. Heat & Ven 13:18-23 Je '16
 Data on central station heating in thirteen Minnesota cities. J. V. Mertenis. Eng & Contr 45:356-7 Ap 12 '16
 Extension of central station steam service in New York. diags maps Heat & Ven 13:48-52 JI '16
 Heating rates—factors to be considered. Heat & Ven 13:41 Ja '16
 How to connect cooling coil, trap and meter in central station heating systems. plan Dom Eng 76:427-8 S 23 '16
 How to figure economy or cooling coils. W. J. Kline. Heat & Ven 13:46-7 O '16
 Large combination steam and forced hot water heating plant; New York state reformatory for women, Bedford Hills, N. Y. diags plans Heat & Ven 12:26-35 D '15
 Making central steam heating pay. Elec W 67:608 Mr 11 '16
 Modern power and heating plant at the University of Michigan. P. C. Satterthwaite. il Dom Eng 76:52-5 JI 8 '16
 National district heating association, eighth annual convention, New York, May 16-19. Heat & Ven 13:27-38 Je '16
 Public service commission rulings on central station heating. Heat & Ven 13:45-6 N '16
 Radiation supplied by different-sized steam lines. Heat & Ven 13:39-40 Ap '16
 Recent improvements in the transmission of steam through underground conduits. il Sci Am 114:558-9 My 27 '16

Heating industry
 Building a profitable heating business. J. V. Dailey. Metal Work 86:523 O 27 '16
 Closer co-operation between the manufacturers and contractors of heating apparatus. F. W. Herendeen. Heat & Ven 13:24-8 Ag '16; Same. Metal Work 86:15-17 JI 7 '16
 Co-operative work of national organizations. Metal Work 85:26-8 Ja 7 '16
 Exhibitors at the 8th annual meeting of the National district heating association. Heat & Ven 13:38-41 Je '16
 Heating and sanitary engineering in Peking. Dom Eng 76:433 S 23 '16
 Overhead expense items for steam fitters. Metal Work 86:615 N 17 '16
 Talk on overhead expense and peanuts. E. E. Melum. Dom Eng 74:9-11 Ja 1 '16
 Trade conditions in 1915, and outlook for 1916, as seen by plumbing and heating contractors, manufacturers and jobbers of plumbing and heating supplies. Dom Eng 73:394-418 D 25 '15
See also Furnace industry; Heating from central stations

Heating pipes
 Chart for finding the expansion of pipe. Metal Work 86:172 Ag 11 '16
 Designing of greenhouse heating plants. P. McKee. il Metal Work 85:407-8, 516-17 Mr 24, Ap 14 '16
 Determination of pipe sizes for hot water heating systems. F. E. Giesecke. il diags Am Soc Heat & V E 21:473-90 '15; Same. Dom Eng 73:166-8, 201-4 N 6-13 '15; Same. Metal Work 84:705-10 D 3 '15; Discussion. A. K. Ohmes. Am Soc Heat & V E 21:490-3 '15

Heating pipes—Continued

Expansion of pipe coils and length of spring pieces. Heat & Ven 13:58 Mr '16

Heat pipes in relation to wood construction. Metal Work 85:349 Mr 10 '16

Heating radiator on boiler level. diag Metal Work 85:321 Mr 3 '16

Hot-water heating at plant of the Crane co., Chicago. T. Wilson. il diags Power 44:370-5 S 12 '16

One-pipe overhead system connected to two-pipe vacuum district heating system. plans Dom Eng 74:136-7 Ja 29 '16

Repairing a cracked ell. W. H. Wakeman. diags Dom Eng 74:262-3 F 26 '16

Returning the water of condensation. W. H. Wakeman. diags Dom Eng 74:360-1 Mr 18 '16

Suggestion for cub engineers. W. D. Forbes. Power 43:222 F 15 '16

System of piping for hot-water heating. il diags Metal Work 85:498-500 Ap 14 '16

See also Furnaces, Hot air—Pipes and fittings; Hot water heating; Steam heating; Steam pipes

Hedges

Vine hedges. W. N. Clute. Sci Am S 81:229 Ap 8 '16

Hefner lamps

Flame standards in photometry. E. B. Rosa and E. C. Crittenden. U S Bur Stand Bul 10: 578-84 Jl 15 '14; Same cond. Sci Am S 81: 222-3 Ap 1 '16

Helical gearing. *See* Gearing, Helical**Hell Gate bridge.** *See* New York (city)—Bridges**Helmets**

French life-saving helmet. il Sci Am S 81:4 Ja 1 '16

Helmets worn as a protection against dangerous dusts. il Sci Am 114:617 Je 10 '16

Protecto ammonia helmet. il Power 44:720-1 N 21 '16

Henrici harmonic analyzer

Henrici harmonic analyzer and devices for extending and facilitating its use. D. C. Miller. il diags J Fr Inst 182:285-322 S '16

Heredity

Hereditary reaction-system relations; an extension of Mendelian concepts. R. E. Clausen and T. H. Goodspeed. Sci Am S 82:307 N 11 '16

Study of hereditary eye defects. C. H. Danforth. Sci Am S 82:168-9 S 9 '16

Herringbone gearing. *See* Gearing, Herringbone**Herschel, Clemens, 1842-**

President of the American society of civil engineers. por Eng N 75:1249-50 Je 29 '16; Eng Rec 74:27-8 Jl 1 '16

Hetch Hetchy project. *See* San Francisco, California—Water supply**Hibbing, Minnesota****Water supply**

Hibbing waterworks system. il Munic J 41: 311-12 S 14 '16

Water-works construction in winter. R. E. McDonnell. il Eng N 75:688-9 Ap 13 '16

Hickory

Commercial uses of the hickory. il Am For 22: 455-7 Ag '16

Growing shagbark hickory for profit. il Sci Am 115:244 S 9 '16

Hickories; identification and characteristics. S. B. Detwiler. il Am For 22:451-5 Ag '16

High buildings

See also Office buildings; Steel construction; also Equitable building, New York

High schools

High school; domestic science, commercial, and manual arts departments, and special rooms. W. H. Kilham. il plans Brickb 25: 57-61 Mr '16

High school of commerce, Springfield, Mass.; views and plans. Brickb 25:pl 40-1 Mr '16

High school; planning and equipment of the science department. W. H. Kilham. il plans Brickb 25:27-30 F '16

High speed steel. *See* Tool steel**Highway accounting**

Construction field books for bituminous macadam highways. J. T. Crawford. Good Roads n s 11:164-6 Ap 1 '16

Form for recording the time of machinery in road work. O. H. Mann. Eng & Contr 45: 81-2 Ja 26 '16

Simple accounting system for highway maintenance. Eng N 74:127-8 D 30 '15

Simplicity the keynote of Oregon's state highway cost-keeping system. G. E. Ross. Eng Rec 73:822-4 Je 24 '16

Highway administration

Attitude of county commissioners toward the public. W. H. Reed. Good Roads n s 11:62 F 5 '16

Competitive examination should govern highway appointments. L. W. Page. Eng Rec 73:139 Ja 29 '16

Contractor's suggestion to engineers and inspectors. J. H. Gordon. Good Roads n s 11:115-17 Mr 4 '16

County engineering in Kansas. il Eng N 75: 299 F 17 '16

Development of highways in Canada and what it means to the Dominion. W. A. McLean. Good Roads n s 11:9-11 Ja 1 '16

Highway conditions in New Jersey, pioneer good-roads state, unsatisfactory. H. Meixell. Jr. Eng Rec 74:323-4 N 18 '16

Highway system of Pennsylvania. il Good Roads n s 11:63-7 F 5 '16

Highway work in Los Angeles county, California. il Good Roads n s 10:289-97 D 4 '15

Illinois highway organization fixes responsibility. Eng Rec 73:393 Mr 18 '16

Millions for paving controlled by handful of pins. il map Eng Rec 72:714-17 D 11 '15

Office system for county highway engineers. H. N. Legreid. Eng & Contr 45:438-9 My 10 '16

Oklahoma highway department. Munic J 40: 611 My 4 '16

Organization of highway departments and the use of planning boards to simplify the operations. W. H. Connell. Good Roads n s 11: 14-15 Ja 1 '16

Organization of the Illinois state highway department. W. W. Marr. chart Good Roads n s 11:76-7 F 5 '16

Overhead expenses in California highway work. Good Roads n s 12:78 Ag 5 '16

Pittsburgh's streets. il chart Good Roads n s 11:47-54 F 5 '16

Planning and organizing for paying county roads. il Eng N 76:248-50 Ag 10 '16

Rational method of selecting types evolved for a comprehensive county road system. W. W. Marr. maps Eng Rec 73:536-8 Ap 22 '16

Record plans of state-aid highways. Eng N 74:1231 D 23 '15

Records of street and road repairs. W. P. Blair. Munic Eng 50:137 Ap '16

Review of West Virginia highway work. A. D. Williams. il Good Roads n s 12:187-90 N 4 '16

Road maintenance in the several states; symposium by twenty state highway officials. Munic J 40:465-79 Ap 6 '16

Supervision of highway work. Munic J 39:875 D 9 '15

System of road working in Warren county, Kentucky. M. H. Crump. Eng & Contr 45: 459-60 My 17 '16

Work of the Iowa state highway commission in 1915. Eng & Contr 45:159 F 16 '16

See also Highway accounting; Highway law; Roads—Finance; Roads—Maintenance and repair

Highway engineering

Highway sessions of American society of civil engineers. Eng N 75:178-9 Ja 27 '16

See also Bridges; Pavements; Roads

Examinations

Examination questions for county road engineers in Kentucky. Eng & Contr 46:396-7 N 1 '16

Study and teaching

Correspondence course in road building given by the University of Oklahoma. Good Roads n s 11:171-2 Ap 1 '16

Highway engineering—Study and teaching—*Cont.*
Good roads education. E. F. Ayres. *Good Roads* n s 11:181 Ap 8 '16

Road building instruction at the A. and M. college of Texas. R. L. Morrison. *Good Roads* n s 12:53 Jl 1 '16

Road schools to be held during the present winter. *Good Roads* n s 10:321 D 18 '15

Short course in highway engineering at University of Illinois. *Good Roads* n s 11:28-9 Ja 8 '16

Short highway courses attract practical men and serve useful purpose. *Eng Rec* 73:586 Ap 29 '16

Where highway engineering may be studied. *Concrete* 9:166 N '16

Highway engineers

Highway engineer and the public. H. W. Boetzkes. *Good Roads* n s 11:237 Je 3 '16

Highway law

Motor-truck legislation advocated in Michigan. *Eng Rec* 74:595-6 N 11 '16

New highway law and the state highway department of Mississippi. *Good Roads* n s 12:116-17 S 2 '16

Oregon road laws need overhauling. J. H. Lewis. *Eng Rec* 74:594 N 11 '16

Proposed changes in the New York highway law. *Good Roads* n s 11:89-90 F 19 '16

Rules and regulations for the prosecution of highway work with Federal aid. *Good Roads* n s 12:155-7 O 7 '16

See also Automobile laws and regulations; Highway administration; Jitney buses—Regulation; Motor trucks—Regulation; Road traffic; Roads—Finance; Street traffic

Highway officials

Directory of state highway officials. *Good Roads* n s 12:87-90 Ag 5 '16

Highway signs. See Road signs

Highways. See Roads; Streets

Hill, James Jerome, 1838-1916

Sketch. por Iron Tr R 58:1200-1 Je 1 '16; Ry Age 60:1181-4 Je 2 '16; Ry R 58:778-80 Je 3 '16

Hill, John Alexander, 1858-1916

Sketch. por Coal Age 9:214-16 Ja 29 '16; Elec W 67:276 Ja 29 '16; Eng & Min J 101:232-4 Ja 29 '16; Eng N 75:180-2 Ja 27 '16; Eng Rec 73:159-60 Ja 29 '16; Iron Age 97:247 Ja 27 '16; Power 43:156-7 F 1 '16

Himalaya mountains

Plains of northern India and their relationship to the Himalaya mountains. S. Burrard. *Sci Am S* 82:170-1 S 9 '16

Hinoki

Essential oil of Formosan Hinoki (chamaecyparis obtusa, S. et Z.) wood. S. Uchida. *Am Chem Soc J* 38:699-702 Mr '16

Hippuric acid

Quantitative determination of hippuric acid in urine, blood, muscles and liver; a method. H. Ito. *diags Am Chem Soc J* 38:2188-92 O '16

Historic buildings

Work of the Louisiana chapter in urging the preservation of the historic architecture of New Orleans, and in seeking to restore its influence in modern building. N. C. Curtis. *il diags Am Inst Arch J* 4:219-23 My '16

Historic houses

Early architecture of the Rappahannock valley; Marmion. F. C. Baldwin. *il plan Am Inst Arch J* 4:87-95 Mr '16

Hobbing machines. See Gear cutting machines

Hobs

Axial movement for hob. *diags Mach* 22:792 My '16

Sharpening and relieving hobs. P. J. Visco. *diags Mach* 22:895 Je '16

Hocking Valley railway

17th annual report. *Ry Age* 61:686, 725-6 O 20 '16

Hogs. See Swine

Hoisting

Analytical determination of mean effective current. C. O. Mailloux. *Elec W* 67:837 Ap 8 '16

Analytical determination of mean effective current. W. D. Peaslee. *diags Elec W* 67:644 Mr 18 '16

Arrangement for converting a several part fall to a two part fall without unreaving line. *diags Eng & Contr* 45:588 Je 28 '16

Domestic special hoisting outfit. *il Munic Eng* 51:160 O '16

Hand hoist for truck loading. *il Munic Eng* 51:160 O '16

Hoist used on a seven-story concrete warehouse, Los Angeles harbor, California. W. D. Jones. *il Eng & Contr* 46:87 Jl 26 '16

Hoisting-rope question. C. M. Rasmussen. *Eng & Min J* 101:699 Ap 15 '16

How did it happen? a novel hoist recorder for mines and elevators, designed to answer this question. F. C. Perkins. *il Sci Am* 115:394 O 28 '16

Safety device on hoists used on foundation wells. *diag Eng N* 75:1047-8 Je 1 '16; Eng & Contr 46:174 Ag 23 '16

See also Gin poles; Mine hoisting

Hoisting chains. See Chains

Hoisting machinery

Automatic elevator for shells. *diags Engineer* 122:423 N 10 '16

Automatic hoist stop saves extra man on crew. *il Eng Rec* 74:271 Ag 26 '16

Belt-and-bucket elevators. A. O. Gates. *diags Eng & Min J* 102:40-5 Jl 1 '16; Discussion. 102:473 S 9 '16

Continuous service electric hoist by Franklin Moore co. *il Iron Age* 97:888 Ap 13 '16

Economics of material handling in manufacturing plants; bucket elevators, bucket conveyors, section conveyors. R. Trautschold. *Ind Management* 52:231-48 N '16

Electric hoist by the Duke engine co. *il Iron Tr R* 57:1090 D 2 '15

Electric hoist by the Sprague electric works. *il Elec W* 67:281 Ja 29 '16

Electrical winding plant in Scotland. *il Engineer* 121:403-4 My 12 '16

Hamilton electric incline railway. *il Elec R & W Elec'n* 67:1160-2 D 25 '15; Same cond. *Elec Ry J* 46:115-16 Jl 17 '15; Same cond. *Eng N* 74:49-51 Jl 8 '15; Same cond. *Ry R* 57:213-14 Ag 14 '15

Handling materials in manufacturing plants. R. L. Streeter. *il Eng M* 50:682-707; 51:228-40 F. My '16

Hoisting equipment for marine terminals. *il Int Marine Eng* 21:462-4 O '16

Inclosed electric hoist with anti-friction bearings. *il diag Elec W* 68:682-3 S 30 '16

Inclosed type of electric hoist. *il Iron Age* 97:835 Ap 6 '16

Jib crane for hoisting pole-top transformers. N. M. Longbothum. *il Elec W* 68:1103 D 2 '16

Little tugger hoist. *il Eng & Min J* 100:971 D 11 '15

Motor-operated clam shell bucket. *il Ry Age* 61:944 N 24 '16

New model Little Tugger hoist. *il Eng & Contr* 46:373-4 O 25 '16

New model portable hoist. *il Iron Tr R* 59:888 N 2 '16

Portable air hoist. E. A. Murray. *diag Ry Mech Eng* 90:480 S '16

Roller bearings applied to electric hoist. *il diag Elec Ry J* 48:690 S 30 '16

Shepard electric hoists. *il Ind Management* 52:sup2-4 N '16

Special mechanical devices needed at small wharves. J. W. Swaren. *il Eng Rec* 74:176 Ag 5 '16

See also Buckets; Conveying machinery; Cranes, derricks, etc.; Electric shovels; Electromagnets; Elevators; Gin poles; Lifting magnets; Mine hoisting; Ore handling; Rope; Wire rope

Control

Nordberg-G. E. hoist for Elm Orlu mining co., Butte, Mont. *Eng & Min J* 101:256-7 F 5 '16

Hoisting rope. See Wire rope

Holding companies

Analysis of Merrill report on water-power. *table Elec W* 68:10-12, 69-70 Jl 1-8 '16

Holding company traveling experts; organization and work of H. L. Doherty & co. *Elec Ry J* 48:491-2 S 16 '16

- Holding devices.** See Arbors (machinery); Chucks; Machine tools—Fixtures
- Holiday printing.** See Christmas printing
- Holland.** See Netherlands
- Hollow tile**
Building a modern low-cost bungalow of hollow tile construction. E. G. Zorn. *il* *diags* plans Bldg Age 38:29-33 My '16
Data on hollow building tile. A. V. Bleininger. *Eng & Contr* 45:139-40 F 9 '16
Tests of hollow-tile, flat-arch floor slabs show effects of concentrated loads. C. T. Morris. *il* *Eng Rec* 73:584-5 Ap 29 '16
Use of clay products in domestic building construction. A. H. Kimball. *Sci Am S* 81:363 Je 3 '16
- Home work**
Shirt and collar industries; report on the cost of production in the United States. U S Bur For & Dom Com misc ser 36:159-63 '16
- Honduras**
Experience of a prospector in Honduras. *Eng & Min J* 101:1118-19 Je 24 '16
New Honduran mining laws. *Eng & Min J* 101:428, 769 Mr 4, Ap 29 '16
Trip through Honduras. D. McBride. *il* map *Eng & Min J* 102:851-4 N 11 '16
- Industries and resources**
Central America as an export field. G. Harris and others. *il* U S Bur For & Dom Com 113: 81-115 '16
- Hopewell, Virginia**
Fire destroys infant city. *il* *Eng N* 74:1197-8 D 16 '15
- Hopper barges**
Canadian government hopper barge No. 2. *il* plans *Int Marine Eng* 21:52-3 F '16
- Hops**
Resins in hops from various geographic localities. G. A. Russell. *J Ind & Eng Chem* 7: 1033-5 D '15
- Hopvines**
Paper and charcoal from hopvines. *Sci Am* 114: 150 Ja 29 '16
- Horn, Substitutes for**
Cheap substitute for horn. *Sci Am S* 81:9 Ja 1 '16
- Horseflesh**
Utilizing horses slain in battle. *Sci Am* 114:94 Ja 22 '16
- Horseless age, The**
20 years of the Horseless age. *Horseless Age* 36:445-7+ N 15 '15
- Horsepower**
Horsepower curves for tractors. B. W. Moses. *Automobile* 35:939 N 30 '16
How to figure horsepower of Janney-Williams motor. H. A. Everett. *Int Marine Eng* 21:167 Mr '16
Measuring engine power. *Horseless Age* 37: 480-1 Je 15 '16
- Horsepower hour**
Horsepower-hour defined. *Mach* 22:700 Ap '16
- Horses**
Care of municipal horses. *Munic J* 39:982 D 30 '15
Passing of the horse. *Sci Am* 115:266 S 16 '16
Selection, training and care of the horse for street cleaning work. D. J. Mangan. *Eng & Contr* 46:389-91 N 1 '16
- Horses in war**
Horses' hospital; work of the German army veterinary surgeons. A. Gradenwitz. *il* *Sci Am* 114:126+ Ja 29 '16
Utilizing horses slain in battle. *Sci Am* 114: 94 Ja 22 '16
- Horseshoe nails.** See Nails, Horseshoe
- Hose**
Air-hose wire-winding tool. H. B. McDermid. *il* *Eng & Min J* 101:14 Ja 1 '16
Metallic flexible hose. *il* *Metal Ind n s* 13:514-15 D '15
Rubber industry. A. H. King. *il* *Met & Chem Eng* 14:75-6 Ja 15 '16
- Hose clamps**
Hose clamp with an unshakable and non-leakable grip. *il* *Sci Am* 115:218 S 2 '16
- Hose couplings**
Repair couplings for old hose. *il* *Elec Ry J* 47: 326 F 12 '16
- Hoshino, S.**
Interview with S. Hoshino. *por* *Inland Ptr* 56: 636-7 F '16
- Hosiery**
Aniline oxidation black on hosiery. E. C. T. Bick. *Textile World* 51:289+ D 25 '15
Cost of manufacturing woolen hosiery. *Textile World* 51:1471+ Mr 18 '16
Dyeing and finishing cotton hosiery. *Textile World* 51:1141+ F 19 '16
Finishing wool hosiery. *Textile World* 51: 4857 N 11 '16
Improvement in ribbed tops. *diag* *Textile World* 51:925 Ja 29 '16
Improvement in seamless hosiery. *il* *Textile World* 51:1475+ Mr 18 '16
Manufacture of full fashioned hosiery. *il* *diags* *Textile World* 51:1467+, 1557+ Mr 18, Ap 15 '16
Rights and lefts in hosiery. *il* *Textile World* 51:193+ D 18 '15
Simple and durable hosiery tester. *diags* *Textile World* 51:3991 S 16 '16
Weight of seamless hosiery. *Textile World* 51: 689 Ja 15 '16
- Hosiery and underwear manufacturers, National association of.** See National association of hosiery and underwear manufacturers
- Hosiery machines**
Hosiery industry. U S Bur For & Dom Com misc ser 31:173-85 '15
Model C automatic hosiery machine. *il* *Textile World* 51:761 Ja 15 '16
New "model K" hosiery machine. *il* *Textile World* 51:191 D 18 '15
Take-up for hosiery machine. *diag* *Textile World* 51:831 Ja 22 '16
- Hosiery mills**
Plan of a hosiery mill. *Textile World* 51:3199+ J1 15 '16
Starting a small hosiery mill. *Textile World* 51:3995+ S 16 '16
Ways of cutting down costs in knitting mills. *Textile World* 51:3285 J1 22 '16
- Hosiery trade**
Government report picks flaws in hosiery trade. *Textile World* 51:339+ Ja 1 '16
Hosiery ass'n. answer to Redfield hosiery report. *Textile World* 51:379+ Ja 1 '16
Hosiery industry. bibliog map U S Bur For & Dom Com misc ser 31:1-258 '15
Hosiery pulls through hard year. *Textile World* 51:655+ Ja 15 '16
- Hospital ships**
Floating hospital Helen C. Juilliard. plans *Int Marine Eng* 21:54-6 F '16
- Hospital trains**
Hospital train for the United States army. *il* plans *Ry R* 59:304-7 S 2 '16; *Ry Age* 61:1003-4 D 1 '16
How French hospital trains help to save the wounded. W. S. Hiatt. *il* plans *Ry Age* 59: 639-42 O 8 '15; *Same.* *Sci Am S* 80:399-1 D 18 '15; *Abstract.* *Am Soc M E J* 38:593-600 J1 '16
Model hospital train. A. Gradenwitz. *il* *Sci Am* 114:664+ Je 24 '16
- Hospitals**
American hospital development. E. F. Stevens. *il* plans *Arch Rec* 38:641-61; 39:65-83 D '15- Ja '16
Hospital for the Illinois Central R. R. at Chicago. *il* *Ry R* 58:773-4 Je 3 '16
Illinois Central hospital, Chicago; views and plans. *Brickb* 25:273, pl 162-4 O '16
Longest span slab used in Chicago hospital. J. N. Jensen. *il* plan *Eng Rec* 74:233 Ag 19 '16
New York orthopaedic dispensary and hospital. L. M. Franklyn. *il* plans *Brickb* 25: 62-4, pl 33-6 Mr '16
Public library at Waltham, Mass., and the Carter memorial hospital at Lancaster, Mass. M. Mower. *il* *diag* plan *Arch Rec* 39: 332-7 Ap '16

Hospitals—Continued**Cost**

Building of the hospital; with segregated costs of the construction of twenty-two hospitals. O. H. Bartine. *Heat & Ven* 13:33-7 J1 '16; Excerpts. *Eng & Contr* 46:82 J1 26 '16

Electric equipment

Hospital finds novel use for electric heater. *il Elec R & W Elec'n* 68:1131 Je 17 '16

Heating and ventilation

Efficient heating for institutional groups. A. L. Baum. *plan Heat & Ven* 13:51-3 N '16
Manhattan state hospital's central heating plant. G. E. Nichols. *plan Power* 44:748-9 N 28 '16
State hospital plant. T. Wilson. *il plans Power* 43:170-4 F 8 '16

Lighting

Hospital lighting. F. L. Godinez. *il Arch & Bldg* 48:128-9, 144-5 Ag-S '16

Hospitals, Military. See Hospital trains

Hospitals, Veterinary

Horses' hospital; work of the German army veterinary surgeons. A. Gradenwitz. *il Sci Am* 114:126+ Ja 29 '16

Hot air furnaces. See Furnaces, Hot air

Hot blast stoves. See Blast furnace stoves

Hot water heaters

Hot-water heater for steel interurban cars. *il diag Elec Ry J* 48:458 S 9 '16

Hot water heating

Comparative test of water heaters. *plan Heat & Ven* 13:51-2 Ja '16
Criticism on heating plan. *diags Dom Eng* 76:258-9 Ag 19 '16

Determination of pipe sizes for hot water heating systems. F. E. Giesecke. *il diags Am Soc Heat & V E* 21:473-90 '15; Same. *Dom Eng* 73:166-8, 201-4 N 6-13 '15; Same. *Metal Work* 84:705-10 D 3 '15; Discussion. A. K. Ohmes. *Am Soc Heat & V E* 21:490-3 '15

Determination of radiator sizes for hot water heating plants. F. Wegelius. *Heat & Ven* 13:24-7 Ja; 11-19 Ap '16

Electric heating in the West. *il plans Metal Work* 85:193-5 F 4 '16

Elements of hot-water heating. G. E. Reid. *il Power* 42:802-4 D 7 '15

Expansion tank connections for forced hot water heating. *diag Elec W* 68:526-7 S 9 '16

Expansion tank data for hot water heating systems. *diag Heat & Ven* 13:58-9 F '16

Figuring heat output of copper coil heaters. I. N. Evans. *Heat & Ven* 13:42 N '16

Forced circulation for greenhouse heating. *diags Metal Work* 86:673-4 D 1 '16

Forced hot water heating work. I. N. Evans. *diags Heat & Ven* 13:37-9 Ja '16

Greenhouse heating system. *diags Metal Work* 84:715, 808-9, 842-3; 85:102, 134-5 D 3, 24-31 '15, Ja 14-21 '16

Heating a conservatory and greenhouse. J. D. Hoffman. *diags plans Dom Eng* 76:221-2 Ag 12 '16; Same. *Heat & Ven* 13:34-8 S '16; Same. *Metal Work* 86:340-1 S 15 '16

Heating by forced circulation of hot water in textile mills. A. G. Duncan. *Power* 43:128-31 Ja 25 '16; Same. *Am Soc M E J* 38:197-201 Mr '16; Same. *Textile World* 51:699, 701, 703, 777 Ja 15 '16; Same cond. *Metal Work* 84:770-3 D 17 '15; Discussion. *Am Soc M E J* 38:201-2 Mr '16

Heating Horticultural palace at exposition. *il plans Metal Work* 85:158-9 Ja 28 '16

Heating with temperature at 40 below zero. J. G. Sorgen. *diags Metal Work* 86:269-70 S 1 '16

Honeywell type of air-seal for hot water heating plants. *diag Heat & Ven* 13:56-7 My '16; *Metal Work* 85:657 My 12 '16

Hot water and warm air systems for homes. B. Thur. *Metal Work* 86:677-9 D 1 '16

Hot-water heating at plant of the Crane co. Chicago. T. Wilson. *il diags Power* 44:370-5, 411-13 S 12-19 '16

Hot water heating for a railroad station in a cold climate; Union Pacific system at Pocatello, Idaho. *il Heat & Ven* 13:16-18 Ag '16

Hot-water heating in Michigan residence. *il plans Metal Work* 85:339-41 Mr 10 '16
Hot-water heating problem. A. D. Palmer. *diags Power* 43:709-10 My 16 '16

Hot-water heating suggestion. J. E. Noble. *diags Power* 44:70 J1 11 '16

Hot water system in a small farmhouse. *diag plans Metal Work* 85:801-2 Je 16 '16

Hot water system in Cleveland building; Parish & Bingham co. *il plan Metal Work* 85:56-7 Ja 7 '16

House heating suggestion. *Locomotive* 31:5 Ja '16

How to heat a garage from hot water heating plant in adjoining residence. *diags Dom Eng* 76:395-6 S 16 '16

Indirect and direct hot-water system. *il plans Metal Work* 85:493-7 Ap 14 '16

Japanese hot water heating practice. *il Metal Work* 85:543 Ap 21 '16

King Richon hot water heating system. *diag Heat & Ven* 13:55-6 Mr '16

Large combination steam and forced hot water heating plant; New York state reformatory for women, Bedford Hills, N. Y. *diags plans Heat & Ven* 12:26-35 D '15

Lecture course on elements of heating. C. A. Fuller. *Metal Work* 85:434, 614-16, 774 Mr 31, My 5, Je 9 '16

New empirical formulae for hot water heating; with pipe sizes for two-pipe systems. J. H. Keller. *Heat & Ven* 13:16-19 Mr '16

Noisy heating system. *plans Dom Eng* 73:366 D 18 '15

Overhead hot water heating plant. *il plan Metal Work* 86:437-9 O 6 '16

Piping a hot water heating system. *diags Dom Eng* 73:335-6 D 11 '15

Piping arrangements for gravity hot water heating systems. C. L. Hubbard. *diags Dom Eng* 75:196-7, 226-8 My 13-20 '16

System of piping for hot-water heating. *il diags Metal Work* 85:498-500 Ap 14 '16

See also Hot water heaters; Radiators

Hot water supply

Accelerated circulation in hot water systems. W. Hutton. *diags Metal Work* 86:393-5 S 29 '16

Air-bound circulation pipes prevent coil and stove from heating range boiler. *diags Dom Eng* 77:220-1 N 18 '16

Auxiliary heating system. *plan Dom Eng* 73:367-8 D 18 '15

Coil sizes for hot water storage tanks. *diags Metal Work* 85:645-6 My 12 '16

Connecting range boiler. *Metal Work* 84:776-7 D 17 '15

Domestic hot water supply system. *diags Dom Eng* 77:146 N 4 '16

Domestic hot water supply systems for apartment buildings and hotels. A. G. King. *diags Dom Eng* 74:290-2 Mr 4 '16

Domestic water heating by electricity versus gas; comparative operating costs. R. L. Webb. *Elec W* 67:1464-5 Je 24 '16; Same. *Gas Age* 38:186 Ag 15 '16

Electric hot-water supplies; abstract. H. H. Holmes. *Elec W* 68:430-1 Ag 26 '16

Exhaust steam in hot water storage systems. G. H. Perkins. *diags Textile World* 51:3553+ Ag 12 '16

Heating coil for warm-air furnace. *Metal Work* 85:468 Ap 7 '16

Heating water with steam. *diags Metal Work* 85:228-9 F 11 '16

Hot-water service in a hotel laundry. *il diag Metal Work* 85:508-9 Ap 14 '16

Hot water supply system, connected to laundry stove and coil in furnace. *diags Dom Eng* 74:364 Mr 18 '16

How to connect range boiler in basement to kitchen range on first floor. *diag Dom Eng* 75:71 Ap 15 '16

Noisy hot water supply system. *diags Dom Eng* 74:170-1 F 5 '16

Piping connection that wrecked a water-back. *diags Metal Work* 85:739 Je 2 '16

Prevention of corrosion in pipe lines. F. N. Speller. *diag Power* 43:304-6, 590 F 29, Ap 25 '16; Same cond. *Ry Mech Eng* 90:227-9 My '16

Putting the sun to work in supplying hot water. *il Sci Am* 115:157 Ag 12 '16

Question about air-binding and circulation. *plans Dom Eng* 74:266 F 26 '16

Hot water supply—Continued

- Trouble with hot water circulation. diags Metal Work 84:892-3 D 24 '15
 Trouble with hot water system. plan Metal Work 84:745 D 10 '15
 Trouble with return circulating line. plan Dom Eng 74:42-3 Ja 8 '16
 Troubles with lime deposits. diags Dom Eng 73:304 D 4 '15
 Unsatisfactory hot water supply system. plan Dom Eng 73:368; 77:40-1 D 18 '15, O 14 '16
See also Electric water heaters; Gas water heaters; Plumbing; Water heaters

Hotels

- Contractor handles electrically concrete materials for Edgewater hotel, Chicago. il diags Eng Rec 73:150-1 Ja 29 '16
 Dome of the old St. Louis hotel, New Orleans. N. C. Curtis. il diags Arch Rec 39:355-8 Ap '16
 Plumbing installation in the new Edgewater Beach hotel at Chicago. il plan Dom Eng 76:252-3 Ag 19 '16

See also Apartment houses

Designs and plans

- Bancroft hotel, Saginaw, Mich.; views and plans. Brickb 25:pl 159-61 O '16
 Design and construction features of a reinforced concrete hotel building at Lake Louise, Alberta, Canada. W. W. Hay. il diags Eng & Contr 45:299-301 Mr 29 '16
 Design features of the Edgewater beach hotel building, Chicago. diags plan Eng & Contr 45:278-89 Mr 22 '16
 Hotel Winecoff, Peachtree street, Atlanta, Ga.; views and plans. Brickb 25:133, pl 78-9 My '16
 New hotel buildings. il plans Arch & Bldg 48:70-92 My '16
 New Monmouth hotel, Spring Lake, N. J.; views and plan. Arch Rec 39:40-5 Ja '16
 Robert Treat hotel, Newark, N. J.; views and plans. Brickb 25:pl 155-8 O '16
 Royal Connaught hotel, Hamilton, Ontario. il plan Arch & Bldg 43:130-3 Ag '16
 William Penn hotel, Pittsburgh, Pa. il plans Brickb 25:187, pl 102-5 Jl '16

Electric equipment

- Electrical construction features of Hotel Morrison, Chicago. il diags plan Elec R & W Elec'n 68:111-15 Ja 15 '16
 Electrical features of a modern hotel, Vancouver, B. C. il Elec R & W Elec'n 68:280-2 F 12 '16
 Electricity in Edgewater Beach hotel, Chicago. il plan Elec W 68:419-20 Ag 26 '16

Equipment

- Sanitary and culinary equipment for hotels. il Metal Work 86:985-6 D 1 '16

Heating and ventilation

- Steam heating system in a country hotel. G. W. Loeber. plans Dom Eng 77:250-3 N 25 '16

Lighting

- Ideal lighting for hotels. F. L. Godinez. il Arch & Bldg 48:68-70 My '16

Power plants

- Records at the Blackstone hotel, Chicago. W. A. Eberman. Power 43:551-6 Ap 18 '16

Hothouses. See Greenhouses**Houdini, Harry**

- Houdini's strait-jacket mid-air escape. il Sci Am 114:398 Ap 15 '16

Hours of labor

- Annual report of the president of the National founders' association. W. H. Barr. Iron Age 98:1120-1 N 16 '16; Abstract. Iron Tr R 35:388 N 16 '16
 Eight-hour day. Eng M 50:927-8 Mr '16
 Eight-hour day testimony. R. Pickering. Eng M 51:280-2 My '16
 Louisiana stationary fireman's act annulled. A. L. H. Street. Power 43:79 Ja 18 '16
 No record of shop time; government works to be run for employees—more eight-hour leverage. Iron Age 96:1312 D 2 '15
 Only test of public opinion on an eight-hour day. Ry Age 61:623 O 13 '16

- Proposed amendments to hours of service law. Ry Age 60:1913 My 12 '16
 Twenty-four hour day. C. J. Morrison. Eng M 50:910-13 Mr '16
 What an eight-hour day is. Ry Age 60:150-1 Ja 28 '16
 What is the significance of the eight-hour working day? O. Bates. Ry R 59:324, 330-2, 334-5, 421-2 S 2-23 '16
See also Child labor; Railroad labor dispute, 1916; Woman—Employment

House boats

- Shallow-draft houseboats for yachtsmen. il plans Int Marine Eng 20:536-9 D '15

House decoration

- Good examples of interior decoration. il Arch Rec 40:163-71, 150 Ag '16
 Portfolio of current architecture. Arch Rec 39:466-73, 556-67; 40:254-65 My-Je, S '16
 Selecting woods for interior finish. J. S. Edmund. il Bldg Age 38:33-4 Ag '16
 Use of native woods for interior finish. C. M. Price. il Brickb 24:217-22, 239-42, 285-9, 295-300 S-D '15

See also Fireplaces; Lattice work; Mantels; Parlors; Woodwork

House drainage. See Drainage, House; Plumbing**House moving**

- House moving hints for the builder. E. W. La Plant. il Bldg Age 38:65-6 F '16
 Long move for 800-ton residence. il diags Eng Rec 74:136 Jl 29 '16
 Notable house moving operation; three story dwelling weighing 375 tons carried down a steep hill. il Bldg Age 38:52 O '16
 1450-ton apartment house moved 80 feet on high cribbing. il Eng Rec 74:126 Jl 1 '16

House numbers

- Block street-number system completed in Utica, N. Y. plan Eng N 75:563 Mr 23 '16
 Country road and house numbering system. plan Eng & Contr 46:386 N 1 '16
 Illuminated porch number. il Elec R & W Elec'n 68:209 Ja 29 '16; Elec W 67:618 Mr 11 '16

House organs

- New house-organ born to Berkowitz & Proper, of New York city. P. G. Smith. Inland Ptr 57:221-2 My '16
 Symposium on company publications. Elec Ry J 48:787-93 O 14 '16

House painting

- Efficiency in modern house painting. Bldg Age 38:70-1 F; 35 O '16
 Suggestions for outside painting. R. H. Forgrave. Bldg Age 38:64-5 S '16

Houseboats. See House boats**Houses. See Architecture, Domestic; Cottages; Country houses; House decoration; Housing problem****Houses, Concrete. See Concrete houses****Houses, Duplex. See Duplex houses****Houses, Historic. See Historic houses****Housewiring campaigns. See Electric service companies—Advertising****Housing conference, National. See National conference on housing****Housing problem**

- English housing scheme; Duchy of Cornwall estate at Kennington, London. R. R. Phillips. il plans Brickb 25:69-74 Mr '16
 Low cost houses for employees. J. Nolen. Am Ind 17:13-17 N '16
 Methods adopted for heating Goodyear Heights, Akron, O. il plans Metal Work 85:881-2; 86:69-70 Je 30, Jl 21 '16
 Morgan Park—a beautiful steel-mill town. il plans map Iron Age 97:48-52 Ja 6 '16
 New housing development at Worcester. W. E. Freeland. il plans Iron Age 97:1187-90 My 18 '16
 One way to help workmen buy their homes. Factory 17:526-7 N '16
 State-wide clean-up of labor camps in California. J. J. Rosenthal. il Eng N 75:1074-6 Je 8 '16
 Tile and cement section houses, Lehigh Valley R. R. il plans Ry R 58:389-91 Mr 18 '16

Housing problem—Continued

Walter Cope memorial prize competition. *il* plans *Am Inst Arch J* 4:337-9 *Ag* '16

See also Apartment houses; City planning; Construction camps

Houston, Texas**Ordinances, etc.**

Regulation of excavations in streets of Houston, Tex. *diag Eng N* 75:549 *Mr* 23 '16; Same cond. *Am Gas Light J* 104:301 *My* 8 '16

Public works

Development of inland ocean port. *il* plans *Eng N* 75:978-80 *My* 25 '16

Sewerage

Activated sludge in Houston. *diags Munic J* 40:585-8 *Ap* 27 '16

Huckaback

Weaves for linen, cotton and union huckabacks. T. Woodhouse. *il Textile World* 51: 1771 *Ap* 8 '16

Hudson Bay railway

Construction of the Hudson Bay Ry. *il* map *Ry R* 58:235-8 *F* 12 '16

Human nature and electron theory. *Sci Am* 114: 658 *Je* 24 '16

Humidifiers

Application of the Steamo air moistener. *diags Heat & Ven* 13:55-6 *Jl* '16

Automatic electric humidification. *diag Elec R & W Elec'n* 68:207 *Ja* 29 '16

Device which automatically regulates the moisture in the air. *il Sci Am* 115:355 *O* 14 '16

Kelsey automatic humidifier. *il Heat & Ven* 12:55 *D* '15

Motor-driven humidifier. *il Elec W* 67:728 *Mr* 25 '16

New types of the Steamo air moistener. *il diags Heat & Ven* 12:50-2 *D* '15

Normalair patented humidifiers. *diags Heat & Ven* 13:54-5 *Je* '16

Humidity

Amount of humidity obtained with air moistener. *Heat & Ven* 12:44 *D* '15

Atmospheric humidity and strength of woolen fabrics. K. B. Lamb. *Textile World* 51:421 *Ja* 8 '16

Calculation of relative humidity. *Coal Age* 8: 986; 9:134-5 *D* 11 '15, *Ja* 15 '16

Danger of excessive humidity in the air supply. *Heat & Ven* 13:47-8 *Jl* '16

Data on the capacity of heated air to carry moisture. *Heat & Ven* 13:42-6 *O* '16

Directions for measuring humidity. K. G. Smith. *Heat & Ven* 13:54 *Jl* '16

Experiences with humidity. A. Bement. *Heat & Ven* 13:50-1 *Ja* '16

How to secure sufficient humidity in house air. P. H. Bryce. *plan Dom Eng* 74:5-6 *Ja* 1 '16

Humidity a factor in cotton picker fires. F. J. Hoxie. *Textile World* 51:2271+ *My* 6 '16

Humidity and automatic control. H. L. Alt. *diags Heat & Ven* 13:21-7 *Jl* '16

Humidity and its measurement. K. G. Smith. *Heat & Ven* 13:36-7 *Mr* '16; Same. *Power* 43:635 *My* 2 '16

Humidity computing scale. A. W. Thompson. *il Textile World* 51:4541 *O* 21 '16

Indoor humidity. W. A. Evans. *Dom Eng* 74:234 *F* 19 '16

Meeting indoor humidity requirements. *Heat & Ven* 12:38-9 *D* '15

New ideas in air conditioning. W. E. Watt. *Heat & Ven* 13:27-9 *F* '16

Physics of heating and ventilation. C. L. Hubbard. *Dom Eng* 76:254-5 *Ag* 19 '16

Psychrometric chart. H. L. Parr. *Power* 43: 434-6 *Mr* 28 '16

Psychrometric tables and chart. *Heat & Ven* 13:17-21 *Jl* '16

Relation of cotton conditioning to picker fires. F. J. Hoxie. *il Textile World* 51:4143+ *S* 23 '16

Relative humidity of air. *il Coal Age* 9:897 *My* 20 '16

Saturation curves for vapor, and weight of air. A. Bement. *Heat & Ven* 13:27-8 *Jl* '16

Standard methods of gas testing. *U S Bur Stand Circ* 48:183-6 '16

Theory and practice in warm-air heating. *diags Metal Work* 84:699-700 *D* 3 '15

Theory of humidity. C. H. Berry. *Sibley J* 30:171-4 *F* '16

See also Humidifiers; Hygrometers

Humphrey pumps

Humphrey pump: recent developments. C. C. Trump. *il diags Sibley J* 30:55-9 *N* '15; Abstract. *Eng M* 50:618 *Ja* '16

Solid piston Humphrey pump. *il diags Engineer* 121:362-3 *Ap* 28 '16

Hunt, Richard Morris, 1828-1895

Reminiscence and an appreciation. *Arch Rec* 39:295-7 *Mr* '16

Hurricanes

See also Galveston—Hurricane, 1915

Hydantoins

Researches on hydantoins; synthesis of the polypeptide-hydantoin—phenylalanyl-glycine-hydantoin. T. B. Johnson and J. S. Bates. *Am Chem Soc J* 38:1087-98 *My* '16

Hydrants

Concrete hydrant and valve chambers. Salt Lake City. *diags Eng N* 76:66 *Jl* 13 '16

Hydrant design and location; with discussion. E. P. Goodrich. *Am Water Works Assn J* 3:723-31 *S* '16

Losses in fire hydrants. C. M. Saville. *Munic J* 40:38-40 *Ja* 13 '16

Monitor fire hydrant used at Miami. *il Eng & Min J* 102:790 *O* 28 '16

Standard specifications for hydrants and valves. *Am Water Works Assn J* 3:677-87 *S* '16

See also Waterworks

Hydrated lime. See Lime**Hydraulic elevators. See Elevators****Hydraulic engineering**

See also Aqueducts; Artesian wells; Breakwaters; Bridges—Foundations and piers; Caissons; Canals; Channels; Cofferdams; Culverts; Dams; Docks; Drainage; Dredging; Drilling and boring (earth and rocks); Embankments; Engineering; Flood control; Flood gates; Flumes; Gates; Harbors; Hydraulic excavation; Hydraulic machinery; Hydraulic mining; Hydraulic presses; Hydraulics; Hydro-electric plants; Irrigation; Jetties; Levees; Lighthouses; Locks (canals and rivers); Los Angeles aqueduct; Pumping machinery; Pumping stations; Reservoirs; Rivers; Sea walls; Siphons; Spillways; Tunnels and tunneling, Subaqueous; Turbines; Water; Water flow; Water hammer; Water power; Water supply; Water supply engineering; Water wheels; Wells; Wharves

Hydraulic excavation

Hydraulic excavation of a large cut in Cleveland, Ohio, grade crossing elimination. C. E. Drayer. *plan Eng & Contr* 46:59 *Jl* 19 '16

Hydraulic filling

Construct dams by hydraulic method with minimum of cost, labor and equipment. C. Wigmore. *il diag Eng Rec* 74:328-9 *S* 9 '16

Hydraulic-fill and wheeled-scrappers for levees. *il plan Eng N* 76:158-60 *Jl* 27 '16

Hydraulic fill method used to throw temporary dam across wide stream. *il Eng Rec* 72:794-5 *D* 25 '15

Sand sluiced around Field museum columns, Chicago, holds them for more fill by conveyors. *il diags Eng Rec* 74:250-2 *Ag* 26 '16

Steam shovel, crusher and pumps put hydraulic fill in dams. *il Eng Rec* 73:190 *F* 5 '16

Three million yards being pumped to build Calaveras dam, 240 feet high, by hydraulic method. G. A. Elliott. *il diag Eng Rec* 74: 220-2 *Ag* 19 '16

Hydraulic machinery

Revolutionary methods used to float and hoist center span of Quebec bridge. *il diags Eng Rec* 74:373-4 *S* 23 '16

Special mechanical devices needed at small wharves. J. W. Swaren. *il Eng Rec* 74:176 *Ag* 5 '16

Warren automatic hydraulic lathe. *il diags Mach* 22:517-20, 916-17 *F*, *Je* '16

See also Hydraulic presses; Hydraulic rams; Pumping machinery; Turbines; Water wheels

Hydraulic mining

- Dredging and hydrauliclicking in 1915 by the Yuma gold co. O. B. Perry. Eng & Min J 100:55-1 Mr 25 '16
- Hydraulic mining at Circle. H. I. Ellis. il plan Eng & Min J 100:962-3 D 11 '15
- Hydraulic stripping on the Cuyuna. H. P. McCarty. il diags Iron Tr R 58:135-9 Ja 13 '16
- Hydrauliclicking at Surigao. P. I. Eng & Min J 100:1005-6 D 18 '15
- Placer-mining methods and operating costs. C. Jamn. U S Bur Mines Bul 121:12-58 '16; Excerpt (Cost data on hydrauliclicking). Eng & Contr 46:340-1 O 18 '16
- Round mountain, Nevada, placers. il Eng & Min J 101:856 My 13 '16
- Sluicing methods at Fairbanks. H. I. Ellis. il diags Eng & Min J 100:993-6 D 18 '15
- Solution of some hydraulic mining problems on Ruby Creek, British Columbia. C. F. Lee and T. M. Paulton. il diags map Am Inst Min E Bul 113:835-42 My '16
- Stripping the Hillcrest iron mine with a sand pump. il map Eng & Min J 101:211-15 Ja 29 '16

See also Gold dredging

Hydraulic motors. See Turbines**Hydraulic power.** See Hydroelectric plants; Hydroelectric power; Water power**Hydraulic presses**

- Design for hydraulic presses. H. Friedmann. diags Mach 22:753-7 My '16
- Drawing metal by hydraulic method. G. R. Smith. il diag Iron Tr R 59:213 Ag 3 '16
- Dual purpose 100-ton hydraulic forcing press. il Bull Am Inst Min 9:1313 Je 1 '16
- Hydraulic cartridge case heading press. il Iron Age 96:1360 D 9 '15
- Hydraulic scrap compressing machine. diag Iron Age 96:1561 D 30 '15
- Hydraulic system in modern shell plant. F. L. Prentiss. il plan Iron Age 98:232-3 Ag 3 '16
- Inverted hydraulic forcing press. il Mach 22:913-16 Je '16
- Knox pressed & welded steel co., Wheatland, Pa., install hydraulic press in record time. il Iron Tr R 57:1284 D 30 '15
- Manufacture of shell forgings. diags Engineer 120:606-7 D 24 '15
- Metalwood banding press. il Mach 22:350 D '15
- Motor-driven hydraulic forcing press. il Iron Tr R 58:1267 Je 8 '16
- 1000-ton hydraulic cartridge case heading press. il Metal Ind n s 13:516-17 D '15
- 1000-ton hydraulic press used for briquetting metal borings. il Eng Rec 74:486 O 14 '16; Iron Age 98:723 O 5 '16; Iron Tr R 59:688 O 5 '16; Metal Ind n s 14:443 O '16; Ry Mech Eng 90:739 O '16
- Shell heading press. il Iron Tr R 57:1285-6 D 30 '15

Hydraulic rams

- Easily made hydraulic ram. H. F. Gray. diag Power 43:265 F 22 '16
- Hydraulic ram. diag Coal Age 10:402 S 2 '16
- Proper use of rams for farm water-supplies. W. G. Kirchoffer. plan Eng N 75:457-8 Mr 9 '16
- Relation of pressure, ram diameter and tonnage in hydraulic presses. W. B. Updegraff. Mach 22:782 My '16
- Siphon-operated hydraulic ram of long standing. H. S. Palmer. diags Eng N 76:164 J 27 '16
- Water supply systems for rural districts. diag Metal Work 86:107-8 J 1 28 '16

Hydraulic stowage

- Stones filled by dashed sand. R. S. Davies. Eng & Min J 102:910-1 N 25 '16

Hydraulic transformers

- Hydraulic transformer for ship propulsion by means of steam turbines. H. Lentz. diag Int Marine Eng 20:576 D '15

Hydraulic valves. See Valves, Hydraulic**Hydraulics**

- Average efficiency of waterwheel influenced by size of bucket. J. S. Carpenter. Eng Rec 73:795-6 Je 17 '16
- Convenient hydraulic equivalents. Eng & Contr 45:234 Mr 8 '16
- Curves for irrigation-ditch velocity and discharge. J. Hinds. Eng N 76:369-70 Ag 24 '16

- Curves for irrigation-ditch velocity and discharge. L. R. Douglass. Eng N 76:72-3 J 1 13 '16

- Flow of oil through orifices. G. P. Anthes. Power 44:58-9 J 11 '16

- Flow of viscous liquids through pipes. W. K. Lewis. diag J Ind & Eng Chem 8:627-32 J 1 '16; Abstract. Am Soc M E J 38:668-9 Ag '16

- Hydraulic principles of flume intakes and outlets. A. C. Norton. diags Eng N 76:541-2 S 21 '16

- Time required to empty a tank. Power 43:269 F 22 '16

See also Hydraulic machinery; Hydrometers; Hydrostatics; Nozzles; Pitot tube; Rivers; Siphons; Stream flow; Stream measurement; Water; Water flow; Water measurement; Water power

Hydrazine

- Oxidation of hydrazine; alleged role of nitrous acid in the formation of hydronitric acid. A. W. Browne and O. R. Overman. Am Chem Soc J 38:285-302 F '16

Hydrazino diacids

- Hydrazino diacids. J. R. Bailey and L. A. Mikeska. Am Chem Soc J 38:1771-84 S '16

Hydrazo compounds

- Thermal decomposition of symmetrical diarylhydrazines. J. Stieglitz and H. T. Graham. Am Chem Soc J 38:1736-60 S '16

Hydrazobenzene

- Thermal decomposition of symmetrical diarylhydrazines. J. Stieglitz and H. T. Graham. Am Chem Soc J 38:1736-60 S '16

Hydriodic acid

- Reduction of vanadic acid by hydriodic acid. G. Edgar. diags Am Chem Soc J 38:2369-77 N '16

Hydroaeroplanes. See Flying boats**Hydrocarbons**

- Action of anhydrous aluminium chloride upon unsaturated compounds. W. E. Henderson and W. C. Gangloff. Am Chem Soc J 38:1382-4 J 1 '16
- Decomposition of hydrocarbons and the influence of hydrogen in carburated water gas manufacture. M. C. Whitaker and E. H. Leslie. diag J Ind & Eng Chem 8:593-601, 684-95 J 1 Ag '16
- Effect of aluminium chloride upon a naphthene base oil in the formation of gasoline, unsaturated and aromatic hydrocarbons. G. Egloff and R. J. Moore. Met & Chem Eng 15:340-50 S 15 '16
- Experiments on the production of gasoline from hydrocarbon oils of high boiling points. E. L. Davies. diags J Ind & Eng Chem 8:114-18 F '16
- Halogenation; bromination of hydrocarbons by means of bromine and nitric acid. R. Lal Datta and N. R. Chatterjee. Am Chem Soc J 38:2545-52 N '16
- Halogenation; chlorination with aqua regia. R. Lal Datta and F. V. Fernandes. Am Chem Soc J 38:1809-13 S '16
- Highly unsaturated hydrocarbon in shark liver oil. M. Tsujimoto. il J Ind & Eng Chem 8:589-96 O '16
- Making liquid hydrocarbons from naphthalene. W. Schneider. Sci Am S 82:163 S 9 '16
- Thermal decomposition of the propane-butane fraction from natural gas condensate. J. E. Zanetti. diags J Ind & Eng Chem 8:674-8 Ag '16
- Thermal reactions in the vapor phase of various coal tar oils and distillates. W. F. Rittman and G. Egloff. Met & Chem Eng 14:15-18 Ja 1 '16
- Viscosity of a thermolized paraffin base oil. G. Egloff and R. J. Moore. Met & Chem Eng 15:192-3 Ag 15 '16
- Hydrocarbons, Aromatic**
- Action of aromatic alcohols on aromatic compounds in the presence of aluminum chloride. R. C. Huston and T. E. Friedemann. Am Chem Soc J 38:2527-33 N '16
- Cracking of paraffin base oils; the time factor and the temperature factor under pressure. G. Egloff, T. Twomey and R. J. Moore. Met & Chem Eng 15:523-9 N 1 '16

Hydrocarbons, Aromatic--Continued

- Equilibrium relations among aromatic hydrocarbons produced by cracking petroleum. W. F. Rittman and T. J. Twomey. *J Ind & Eng Chem* 8:20-2 Ja '16
- Formation of aromatic compounds from the cracking of a gas oil. G. Egloff and T. J. Twomey. *Met & Chem Eng* 15:15-18 Jl 1 '16
- Manufacture of gasoline and benzene-toluene from petroleum and other hydrocarbons. W. F. Rittman, C. B. Dutton and E. W. Dean. *il diags U S Bur Mines Bul* 114:1-214 '16
- Reactions resulting in the cleavage of polynuclear aromatic compounds. E. P. Kohler and R. H. Patch. *Am Chem Soc J* 38:1205-16 Je '16
- Thermal and pressure decomposition of a naphthalene base oil in the gas phase. G. Egloff, T. J. Twomey and R. J. Moore. *Met & Chem Eng* 15:387-92 O 1 '16
- Thermal decomposition of the aliphatic hydrocarbon derivatives of naphthalene. G. Egloff. *Met & Chem Eng* 15:125-7 Ag 1 '16
- Thermal decomposition of the ethane-propane fraction from natural gas condensate. J. E. Zanetti and E. H. Leslie. *J Ind & Eng Chem* 8:777-9 S '16
- Thermal reactions of aromatic hydrocarbons in the vapor phase. W. F. Rittman, O. Byron and G. Egloff. *J Ind & Eng Chem* 7:1019-24 D '15
- Time factor in the formation of aromatic hydrocarbons from a paraffin base oil. G. Egloff and T. J. Twomey. *Met & Chem Eng* 15:245-50 S 1 '16
- Utilization of aromatic hydrocarbons derived from cracked petroleum. W. F. Rittman. *J Ind & Eng Chem* 7:1014-19 D '15

Hydrochloric acid

- Free energy of hydrochloric acid in aqueous solution. J. H. Ellis. *diags Am Chem Soc J* 38:737-62 Ap '16

See also Aqua regia

Hydrocyanic acid

- By-products of gas manufacture. *Sci Am S* 81:75 Ja 29 '16
- Determination of small quantities of hydrocyanic acid. M. O. Johnson. *Am Chem Soc J* 38:1230-5 Je '16

Hydrocyanic-acid gas

- Manufacturing tests of cotton fumigated with hydrocyanic-acid gas. W. S. Dean. *U S Agric Bul* 366:1-12 '16; *Excerpt. Textile World* 51:4343 O 7 '16

Hydroelectric plants

- Feeding a hydro-electric plant with a pump. *il Sci Am* 115:17 Jl 1 '16
- Forms used by New England company for recording hydraulic data from observation stations. *Elec W* 68:1060 N 25 '16
- Hydraulic power plant at the Henry Ford Farms. M. A. Replogle. *il diags Am Soc M E J* 38:35-7 Ja '16; *Same. Power* 43:28-30 Ja 4 '16; *Excerpts. Eng N* 74:1193 D 16 '15; *Eng Rec* 72:752-3 D 18 '15; *Eng M* 50:785 F '16; *Discussion. Am Soc M E J* 38:149-51 F '16
- Hydro-electric development here and in North America. M. Deutsch. *Power* 43:416-17 Mr 21 '16
- Solids a problem at power plants in Northwest. J. Harisberger. *il diag Eng Rec* 74:290-1 S 2 '16
- Ten years of evolution of hydro-electric units; with discussion. E. B. Ellicott and W. B. Jackson. *W Soc E J* 20:613-27 O '15

See also Dams; Electric transmission; Turbines

Auxiliary plants

- Combined operation of steam and hydraulic power in the Pennsylvania water and power company system. J. A. Walls. *Am Inst E E Pro* 34:2299-306 O '15; *Discussion. 35:627-33 My '16*
- Supplemental power for hydroelectric systems. J. F. Vaughan. *Am Inst E E Pro* 34:2307-19 O '15; *Discussion. 35:627-33 My '16*

Cost

- Estimated costs of hydroelectric plants on Winnipeg river. *Eng & Contr* 46:412-13 N 8 '16

Alberta

- Five schemes considered for power development at Kananaskis Falls. H. S. Johnston. *il diags map Eng Rec* 73:70-2, 115-17 Ja 15-22 '16

Arizona

- Highly erratic stream flow utilized efficiently; hydroelectric plant on the Salt river project. *diags Eng Rec* 73:19-20 Ja 1 '16
- Impulse wheels developed for silt-laden water. J. W. Swaren. *il diags Eng N* 75:740-4 Ap 20 '16

Arkansas

- \$5,000,000 hydro-electric development in Arkansas. *Eng & Contr* 45:594 Je 28 '16
- Mammoth Spring hydroelectric plant. E. C. Bellamy. *il Elec R & W Elec'n* 68:144-5 Ja 22 '16

British Columbia

- Water powers of Canada. *Engineer* 120:475-6 N 19 '15

California

- Isolated hydro-electric plant. W. Swaren. *il Power* 43:220-1 F 15 '16

Canada

- Estimated costs of hydroelectric plants on Winnipeg river. *Eng & Contr* 46:412-13 N 8 '16

Connecticut

- Stop slides by releasing accumulated water at Bulls Bridge hydroelectric plant. C. R. Harte. *il diag map Eng Rec* 73:696-8 My 27 '16

Georgia

- Construction elements of the Tallulah Falls development. C. G. Adsit and W. P. Hammond. *il diags Am Inst E E Pro* 34:2497-546 O '15; *Discussion. 35:634-7 My '16*
- Results of tests on high-head waterwheels. *il diag plan Elec W* 67:82-5 Ja 8 '16
- Tests of 18,000-hp. Tallulah Falls turbines. E. Lauchli. *il diags Eng N* 75:356-7 F 24 '16

Massachusetts

- Hydroelectric developments on Deerfield river. *il Elec R & W Elec'n* 68:188 Ja 29 '16
- Power from city water-supply at Sudbury dam. *diags plan Eng N* 75:544 Mr 23 '16

Michigan

- Hydroelectric station auxiliary to steam plant. R. K. Holland. *il plans Elec W* 66:1410-12 D 25 '15

Minnesota

- Uniform load approached by bulk supply. W. N. Rverson. *il plan map Elec W* 67:697-700 Mr 25 '16

Montana

- Montana power company and its part in the electrification of railways. J. D. Ryan. *il map Gen Elec R* 19:915-22 N '16

New York (state)

- Concealed plant for Niagara Falls. *Elec W* 66:1391-2 D 18 '15
- Developing more water power on Genesee at Rochester. *il diags plan Eng N* 76:821-5 N 2 '16; *Same. Power* 44:683-4 N 14 '16
- How the New York state barge canal will be operated. W. H. Yates. *il diags Eng N* 75:158-60 Ja 27 '16
- Power equipment for the Barge canal system of the state of New York. C. H. MacCulloch. *il Eng & Contr* 46:241-5 S 13 '16
- Power plants and factories moved at Seneca Falls. *diags Eng N* 76:148-9 Jl 27 '16
- Waterloo hydro-electric plant. N. G. Meade. *il diags Power* 43:429-32 Mr 28 '16

New Zealand

- Hydro-electric power in New Zealand. W. Wilson. *maps Inst E E J* 54:275-91 F 1 '16
- Two small hydro-electric plants in New Zealand. *il maps Engineer* 122:194-5 S 1 '16

North Carolina

- Automatic operation of a small hydroelectric plant in Boone, North Carolina. D. R. Shearer. *il diag Elec W* 67:1454; 68:226-7 Je 24, Jl 29 '16

Hydroelectric plants—North Carolina—Continued

- Famous Yadkin development nearing completion. il diags plan Eng N 76:917-22 N 16 '16
 Industrial giant of recent birth; the importance of aluminum in modern technology necessitates immense new plant in North Carolina. il Sci Am 115:366 O 21 '16
 Mammoth water turbines in Yadkin river station. il plan Elec W 68:1039-40 N 25 '16
 Modern turbines and new power house replace earlier French design of Yadkin river power project. il diags plan Eng Rec 74:610-13 N 18 '16
 On the contractor's end of the Yadkin development. il diags plan Eng N 76:922-4 N 16 '16
 Three 31,000-hp. turbines for Yadkin plant. il diag Eng N 76:924-6 N 16 '16

Oregon

- 5,000-hp. silent-chain drive. J. R. Allen. il diags Power 44:89-91 J1 18 '16; Same (How the world's largest silent-chain drive solved a power-plant problem). Sci Am 115:435+ N 11 '16

Quebec

- Cedars Rapids hydro-electric development. R. C. Muir. il diags map Gen Elec R 19:541-54 Je '16
 Engineers condemn Montreal's municipal power plant. map Eng N 76:1048-9 N 30 '16

South America

- Hydro-electric development in South America. L. W. Schmidt. Power 44:542-5 O 17 '16

Spain

- Hydro-electric undertakings in Spain. diags map Engineer 121:590-1 Je 16 '16

Sweden

- Swedish state hydro-electric power station, Alfkarleby. Power 44:353 S 5 '16

Tasmania

- Lake Margaret hydro-electric power scheme. il Engineer 121:40-1 Ja 14 '16

Tennessee

- Hales Bar hydro-electric power station of the Chattanooga and Tennessee river power company. P. Torchio. il diags plan Gen Elec R 13:684-92 Ag '16
 Tennessee river hydroelectric installation being completed with modern turbines. diags Eng Rec 74:377-8 S 23 '16

Washington

- Tacoma hydro-electric power plant. W. L. Kidston. il diags Power 43:2-7 Ja 4 '16
 Water powers of the state of Washington. W. E. Herring. Met & Chem Eng 15:436 O 15 '16

Wisconsin

- Building power house and dam on sand foundation. il diags plan Eng N 75:1113-16 Je 15 '16
 Large open-flume development on Chippewa river. diag Elec W 67:311-12 F 5 '16

Hydroelectric plants, Municipal

- Tacoma hydro-electric power plant. W. L. Kidston. il diags Power 43:2-7 Ja 4 '16

Hydroelectric power

- Bill to amend Ontario hydroelectric commission act. Elec W 67:752 Ap 1 '16
 Control of developed power in the United States. Elec W 67:302-9, 362-4 F 5-12 '16
 Cost of hydro-electric power. Eng & Min J 102:840 N 4 '16
 Electrochemical possibilities of the Pacific coast states as compared with those of Sweden and Norway. J. W. Beckman. Met & Chem Eng 15:18-21 J1 1 '16
 European hydro-electric power development. L. W. Schmidt. Power 44:98 J1 18 '16
 Forty million horse power wasted. H. L. Cooper. il Sci Am 115:498-9 D 2 '16
 Necessity for the development of the water-power resources of the United States. H. J. Pierce. Elec W 67:191 Ja 22 '16
 Niagara falls power development. I. R. Edmands. Met & Chem Eng 14:507-9 My 1 '16

- Niagara falls power famine; meeting of the Committee on foreign affairs of House of representatives and the Niagara Falls board of trade. Met & Chem Eng 15:115-20 Ag 1 '16

- Niagara power crisis. Met & Chem Eng 15:617-18 D 1 '16

- Niagara the commercial research laboratory of the nation. A. H. Hooker. Met & Chem Eng 14:261-2 Mr 1 '16

- Operating trains across the Great Divide by power from water falls. il Sci Am 114:298+ Mr 18 '16

- Power and irrigation project for the Big Horn Canyon. il diags map Ry R 59:436-48 S 30 '16

- Power development possibilities of completed reclamation service projects. A. P. Davis. Eng & Contr 46:139-40 Ag 9 '16

- Power famine at Niagara; meeting of Niagara Falls section of American electrochemical society, Feb. 2. Met & Chem Eng 14:239-41 Mr 1 '16

- Power situation at Niagara falls; discussion at Niagara Falls section of the American electrochemical society. Elec W 67:471-2 F 26 '16

- Status of water-power development. H. W. Buck. Elec W 67:148-51 Ja 15 '16; Same cond. Sci Am S 82:166-7 S 9 '16

- Twin Cities' interest in the High dam. A. F. Meyer. Assn Eng Soc J 55:170-83 N '15

- U. S. government investigates water-power control. Power 43:270-2 F 22 '16

- Water-power development in United States. J. C. Hoyt. il Power 43:348-9 Mr 14 '16

- See also Electric power; Hydroelectric plants; Water power; also Yosemite power company

Hydrofluoric acid

- Use of hydrofluoric acid in the separation of some heavy metals from tin, antimony, tungsten, and molybdenum, by means of the electric current. L. W. McCav and N. H. Furman. Am Chem Soc J 38:640-52 Mr '16

Hydrogels. See Colloids**Hydrogen**

- Dissociation of hydrogen into atoms. I. Langmuir. Am Chem Soc J 37:417-58; 38:1145-56 Mr '15, Je '16

- Electrolytic cell for making pure oxygen and hydrogen. il Met & Chem Eng 14:108-10 Ja 15 '16

- Electrolytic hydrogen. H. L. Barnitz. il diags Sci Am S 82:356-8 D 2 '16

- Electrolytic oxygen and hydrogen installation in a shipbuilding plant. il Met & Chem Eng 14:288-9 Mr 1 '16

- Gas for war balloons. Am Gas Light J 104:59-60 Ja 24 '16

- Hydrogen for military purposes. E. D. Ardery. Sci Am S 82:266-7 O 21 '16; Same cond. Met & Chem Eng 14:333-4 Mr 15 '16; Same cond. Am Gas Light J 104:299-301 My 8 '16; Abstract. J Fr Inst 182:190 Ag '16

- I. O. C. bipolar oxygen and hydrogen generator. il Iron Age 96:1520-1 D 30 '15; Mach 22: 438-9 Ja '16; Ry Mech Eng 90:45-6 Ja '16; Iron Tr R 58:293 F 3 '16; Int Marine Eng 21: 308-9 Je '16

- Interaction of hydrogen and chlorine under the influence of alpha particles. H. S. Taylor. Am Chem Soc J 38:280-5 F '16

- Messerschmitt process for the production of hydrogen. H. L. Barnitz. il Met & Chem Eng 15:494-8 O 15 '16

- Operating features of an Illinois oxygen and hydrogen plant, Clearing, Ill. il diags Elec W 67:95-6 Ja 8 '16

- Oxygen and hydrogen generating system, patented by G. Halter. diag Met & Chem Eng 14:342 Mr 15 '16

- Technical production of hydrogen and its industrial application. H. L. Barnitz. Met & Chem Eng 14:391-5 Ap 1 '16

- Use of copper oxide for fractionation combustion of hydrogen and carbon monoxide in gas mixtures. G. A. Burrell and G. G. Oberfell. diag J Ind & Eng Chem 8:228-31 Mr '16

Hydrogen, Compressed

- Making compressed hydrogen. Sci Am S 81:253 Ap 15 '16

Hydrogen peroxide

- Catalysis of hydrogen peroxide. G. Lemoine. Sci Am S 82:235 O 7 '16

Hydrogen peroxide—Continued

Catalytic decomposition of hydrogen peroxide in certain nonaqueous solutions. J. H. Walton and D. O. Jones. *diag Am Chem Soc J* 38:1956-61 O '16

Partition coefficients of hydrogen peroxide between water and certain organic solvents. J. H. Walton and H. A. Lewis. *Am Chem Soc J* 38:633-8 Mr '16

Hydrogen sulphide

Action of hydrogen sulfide on arsenic acid. W. Foster. *Am Chem Soc J* 38:52-7 Ja '16

Laboratory studies on secondary sulphide ore enrichment. S. W. Young and N. F. Moore. *Econ Geol* 11:349-65 Je '16

Hydrogenation

Experiments on the production of gasoline from hydrocarbon oils of high boiling points. E. L. Davies. *diags J Ind & Eng Chem* 8:114-18 F '16

Hydrogenated oils in the soap industry. C. Ellis. *Sci Am S* 82:59 JI 22 '16

Problem of catalyzer poisons with reference to the hydrogenation of fatty oils. C. Ellis and A. A. Wells. *J Ind & Eng Chem* 8:886-8 O '16

Technical production of hydrogen and its industrial application. H. L. Barnitz. *Met & Chem Eng* 14:394-5 Ap 1 '16

Hydrographic surveying

Autoplanograph maps route of boat in sounding operations. *il Eng Rec* 74:147 JI 29 '16

Profilegraph plots profiles of river and harbor beds. *il Eng Rec* 74:109 JI 22 '16

Registering hydrometer for great depths. *diag Eng Rec* 74:171 Ag 5 '16

See also Sounding

Hydrolysis

Effect of sodium chloride upon the action of invertase. H. A. Fales and J. M. Nelson. *Am Chem Soc J* 37:2769-86 D '15

Hydrolysis of chloropentanes as affected by high pressure: synthetic fusel oil. H. Essex, H. Hibbert and B. T. Brooks. *diag Am Chem Soc J* 38:1368-74 JI '16

Hydrolysis of ethyl-sulfuric acid and the assay of aromatic sulfuric acid. U. S. P. W. B. D. Penniman and others. *diag J Ind & Eng Chem* 8:904-9 O '16

Hydrolysis of hexahydropyrimidine. G. E. K. Branch. *Am Chem Soc J* 38:2466-74 N '16

Studies on nitrated proteins: the hydrolysis of nitro-fibroin with hydrochloric acid. T. B. Johnson and A. J. Hill. *Am Chem Soc J* 38:1392-8 JI '16

Hydrometallurgy

Chloridizing complex ores, patent by C. C. Titus and W. J. Barescheer. *flow sheet Met & Chem Eng* 14:451 Ap 15 '16

General subject of leaching; discussion. *Am Inst Min E Bul* 120:2160-3 D '16

Hydrometallurgical treatment of complex gold and silver ores. G. H. Clevenger. *Met & Chem Eng* 14:203-10 F 15 '16

Hydrometallurgy of copper, patented by R. R. Goodrich. *diag Met & Chem Eng* 14:341 Mr 15 '16

Hydrometallurgy of lead. H: R. Ellis. *Met & Chem Eng* 14:122 F 1 '16

Hydrometallurgy of zinc and lead in 1915. D. A. Lyon, O. C. Ralston and J. F. Cullen. *Met & Chem Eng* 14:30-2 Ja 1 '16

Hydrometallurgy of zinc, patented by O. Best. *Met & Chem Eng* 14:104 Ja 15 '16

Hydrometallurgy of zinc with electrolytic deposition. F: Laist and F: F. Frick. *Met & Chem Eng* 14:220 F 15 '16

Leaching tests at New Cornelia. H. W. Morse and H. A. Tobelmann. *flow sheet Am Inst Min E Bul* 117:1593-1610 S '16; Abstract. *Met & Chem Eng* 15:484-5 O 15 '16; Discussion. *Am Inst Min E Bul* 120:2151-9 D '16

Lixivation of lead and zinc. *flow sheet Eng & Min J* 102:591 S 30 '16

Malm process. *Eng & Min J* 101:679-80 Ap 15 '16

Malm process. J: L. Malm; S. A. Ionides. *Eng & Min J* 101:864-5 My 13 '16

Metallurgical operations at the Chile exploration co. C. A. Rose. *il diags flow sheet Eng & Min J* 101:321-6 F 12 '16; Abstract. *Met & Chem Eng* 14:278-9 Mr 1 '16

Possibilities in the wet treatment of copper concentrates. L. Addicks. *il Am Inst Min E Bul* 117:1565-73 S '16; Same. *Met & Chem Eng* 15:628-30 D 1 '16; Discussion. *Am Inst Min E Bul* 120:2160 D '16

Progress at Ajo leaching plant. *Eng & Min J* 102:944 N 25 '16

2,000-ton leaching plant at Anaconda. F: Laist and H. W. Aldrich. *il diags flow sheet Am Inst Min E Bul* 116:1281-93 Ag '16; Same cond. *Eng & Min J* 102:337-8 Ag 19 '16; Abstract. *Met & Chem Eng* 15:485 O 15 '16; Discussion. *Am Inst Min E Bul* 120:2159 D '16

Winona, Mich., copper-leaching test plant. *Eng & Min J* 102:929-30 N 25 '16

Hydrometers

How to read the hydrometer. *il Power* 43:536-7 Ap 18 '16

Hydrometer with temperature correction. *diag Gas Age* 38:615-16 D 1 '16

Registering hydrometer for great depths. *diag Eng Rec* 74:171 Ag 5 '16

Standard density and volumetric tables. U S Bur Stand Circ 19:1-65 '16

Testing of hydrometers. *il diag U S Bur Stand Circ* 16:1-16 '16

United States standard Baumé hydrometer scales. U S Bur Stand Circ 59:1-13 '16; Excerpt. *Sci Am S* 82:311 N 11 '16

Hydromotors

Hydromotors in Los Angeles. *il Automobile* 33:1096 D 16 '15

Hydronitric acid

Oxidation of hydrazine; alleged role of nitrous acid in the formation of hydronitric acid. A. W. Browne and O. R. Overman. *Am Chem Soc J* 38:285-302 F '16

Hydroquinone

Experiments on the electrolytic production of hydroquinone. A. R. Greenleaf. *Met & Chem Eng* 14:560-1 My 15 '16

Hydrostatics

Design charts for open flumes with catenary section. E. L. Robinson. *Eng N* 75:566-7 Mr 23 '16

Water supply to dwellings and large buildings. J. Graham. *diags Dom Eng* 75:260-1, 326-7, 392-4; 76:153-4 My 27, Je 10, 24, JI 29 '16

See also Capillarity; Compressibility; Hydraulics; Hydrometers; Pascal's hydrostatic law

Hydroxylamine hydrochloride

Electrolytic preparation of hydroxylamine hydrochloride. E. P. Schoch and R. H. Pritchett. *diag Am Chem Soc J* 38:2042-4 O '16

Hydroxylamines

Molecular rearrangement of triarylmethylhydroxylamines. E. A. Stagner. *Am Chem Soc J* 38:2069-81 O '16

Molecular rearrangements of β -triphenylmethyl- β -methyl hydroxylamines and the theory of molecular rearrangements. J. Stieglitz and E. A. Stagner. *Am Chem Soc J* 38:2046-63 O '16

Hygiene

Sunlight a necessity for the maintenance of health. J. W. Kime. *Sci Am S* 81:295 My 6 '16

See also Air pollution; Alcohol, Physiological effects of; Dust removal; Factory sanitation; Fatigue; Food; Humidity; Longevity; Physical examinations; Tobacco, Physiological effects of; Water pollution

Hygiene, Industrial

Health conservation at steel mills. J. A. Watkins. U S Bur Mines Tech Pa 102:1-34 '16; Excerpts. *Metal Work* 86:473-5 O 13 '16

How to increase factory efficiency. O. M. Becker. *il Eng M* 51:813-26 S '16

Industrial hygiene and dividends. W. S. Rankin. *Textile World* 51:3383+ JI 29 '16

Physiology of labor. *Sci Am* 115:296 S 30 '16

Sanitation and health. L. D. Burlingame. *Metal Work* 86:595 N 10 '16

See also Occupations, Dangerous; Physical examinations; Safety devices and measures

Hygiene, Military. *See Military hygiene*

Hygiene, Tropical. *See Tropical hygiene*

Hygrometers

- Curious hygrometers and barometers. S. L. Eastin. *il Sci Am* 115:264+ S 16 '16
Simplified condensation hygrometer; abstract. C. Margot. *diags Am Soc M E J* 38:596 J1 '16

Hyperbolic functions. See Functions, Exponential
Hyphen. See Compound words

Hysteresis

- Effect of cooling on magnetic properties of iron and steel. E. Gumlich and W. Steinhaus. *Elec W* 67:501 F 26 '16
Effect of displaced magnetic pulsations on the hysteresis loss of sheet steel. L. W. Chubb and T. Spooner. *il diags Am Inst E E Pro* 34: 2321-42 O '15; Discussion. 35:506-10 Ap '16
Fundamental magnetic laws. J. D. Ball. *Elec W* 67:777-8 Ap 1 '16
Graphic determination of hysteresis loss; abstract. A. Castex. *Elec W* 68:679 S 30 '16
Losses in cables armored with steel tape. W. I. Middleton and E. W. Davis. *Elec W* 68: 1006 N 18 '16
Theory and operation of split-phase magnet. F. Hymans. *diag Elec W* 68:1001 N 18 '16
Thermo-electric method of studying allotropic changes. C. Benedicks. *Engineer* 122:22-3 J1 7 '16; Same. *Met & Chem Eng* 15:337-40 S 15 '16; Same. *Sci Am S* 82:362-3 D 2 '16
Unsymmetrical hysteresis loop. J. D. Ball. *Am Inst E E Pro* 34:2275-97 O '15; Discussion. 35:506-10 Ap '16

I**Ice**

- Effect of dissolved substance on the velocity of crystallization of water. J. H. Walton and A. Brann. *Am Chem Soc J* 38:317-30, 1161-6 F, Je '16

See also Glaciers; Ice industry and trade; Refrigeration and refrigerating machinery; Sleet

Manufacture

- Electrical operation of twenty artificial ice factories in Chicago. *il Elec W* 67:1155 My 20 '16
Electricity in raw-water ice-making. *il Elec R & W Elec'n* 69:755-8 O 28 '16
Electricity in raw-water ice-making. C. J. Carlsen. *il diag Elec R & W Elec'n* 68:908-14 My 20 '16
Manufacture of artificial ice by central stations. *diag Elec W* 67:609-10 Mr 11 '16
Raw-water can ice; abstract. V. R. H. Greene. *Am Soc M E J* 38:839-40 O '16
Relative cost of raw- and distilled-water ice. F. Ophuls. *Power* 44:734 N 21 '16

See also Refrigeration and refrigerating machinery

Ice cream**Manufacture**

- Electrically operated freezers for making ice cream in quantities. *il Elec W* 67:1061-2 My 6 '16

Ice harvesting

- Electricity in ice harvesting. *il Elec R & W Elec'n* 67:1005-7 D 4 '15

Ice industry and trade

- Applying the motor truck to the ice business. R. C. Hargreaves. *il Sibley J* 30:90-3 D '15

Ice mine

- Coudersport, Pennsylvania, freezing cave. E. S. Isher. *Sci Am* 114:663 Je 21 '16
Ice mine that freezes in summer and melts in winter at Coudersport, Pa. C. A. Vander-muelen. *il Sci Am* 114:470+ My 6 '16

Icebergs

- Ocean temperatures in the vicinity of icebergs. C. W. Waidner, H. C. Dickinson and J. J. Crowe. *Sci Am S* 81:166-7 Mr 11 '16

Idaho

See also Gold mines and mining—Idaho; Mines and mineral resources—Idaho; Roads—Idaho

Identification

See also Finger prints

Idler stands. See Mine hoisting

Ignition. See Automobile engines—Ignition devices; Gas and oil engines—Ignition

Ignition of gas. See Gas—Ignition

Ignition of wood. See Wood, Ignition of

Illinois

See also Roads—Illinois

Law

- Structural engineers' license law of the state of Illinois. *Eng & Contr* 46:360-2 O 25 '16

Illinois Central railroad

- Illinois Central R. R.'s plan for new terminal in Chicago. *il plan Ry R* 59:403-5 S 23 '16
Illinois Central station at Chicago. *plans Ry Age* 61:517-19 S 22 '16
66th annual report. *map Ry Age* 61:625-6, 669-71 O 13 '16

Illinois electric railways association

- Annual meeting, Chicago, Jan. 21. *Elec Ry J* 47:207-8 Ja 29 '16
Illinois association discusses power economies. *Elec Ry J* 47:685-8 Ap 8 '16
Regular meeting, Chicago, June 9. *Elec Ry J* 47:1125-6 Je 17 '16

Illinois gas association

- Address. R. B. Harper. *Am Gas Light J* 104: 225-7 Ap 10 '16

Illinois mining institute

- Summer meeting, Du Quoin, May 25-27. *Coal Age* 9:1007-8 Je 10 '16

Illinois river

- Engineers allocate all uses of Illinois river—floods, farming and fisheries. *Eng Rec* 74: 16-17 J1 1 '16
Illinois river flood. L. K. Sherman. *Eng N* 75: 550-1 Mr 23 '16

Illinois state association of master plumbers

- 24th annual convention, Peoria, Jan. 25-27. *Dom Eng* 74:142-5 Ja 29 '16
24th annual convention, Peoria, Jan. 25-27. *Metal Work* 35:200-1 F 4 '16

Illinois state electric association

- Convention, Champaign, Feb. 24-25. *Elec R & W Elec'n* 68:402-3 Mr 4 '16

Illinois. University

- Correction of echoes and reverberation in the auditorium at the University of Illinois. F. R. Watson and J. M. White. *bibliog il diags plans Ill U Eng Exp Sta Bul* 87:1-20 '16

- Dedication of the new chemistry building University of Illinois. *il diag plans J Ind & Eng Chem* 8:523-47 Je '16

- Engineering experiment station of the University of Illinois. E. B. Paine. *Am Inst E E Pro* 34:2421-7 O '15; Discussion. 35:504-5 Ap '16

- Laboratory tests of a consolidation locomotive; description of the locomotive laboratory. E. C. Schmidt, J. M. Snodgrass and R. B. Keller. *il diags Ill U Eng Exp Sta Bul* 82: 68-85 '15

- New chemical laboratory of the University of Illinois. *il plans Met & Chem Eng* 14:421-4 Ap 15 '16

Illuminating engineering society

- Course of lectures on illuminating engineering. C. E. Clewell. *Gen Elec R* 19:720-3 Ag '16

- Illuminating engineering lecture course. L. Bell. *Am Gas Light J* 104:328 My 20 '16

- Midwinter convention, New York, Feb. 10-11. *Elec R & W Elec'n* 68:320 F 19 '16; *Elec W* 67:413-15 F 19 '16

- Plans of the Illuminating engineering society for 1916. C. P. Steinmetz. *Elec W* 67:37 Ja 1 '16

- Presidential address. C. P. Steinmetz. *Am Gas Light J* 105:193-4 S 25 '16

- Report of the council for the year ending September 20, 1915. *Illum Eng Soc* 11:114-30 no 1 '16

- 10th anniversary of the Illuminating engineering society. L. B. Marks. *Illum Eng Soc* 11: 593-600 no 6 '16

- 10th annual convention, Philadelphia, Sept. 18-20. *Elec R & W Elec'n* 69:538-40 S 23 '16; *Elec W* 68:608-10 S 23 '16; *Gas Age* 38:351-5 O 2 '16; *Illum Engr* 9:305-8 O '16

Illumination. See Lighting; Photometry

Ilmenite

High titanium products from ilmenite. R. Hesse. Eng & Min J 102:832 N 4 '16

Imagination

Economy in study; educative imagination. G. V. Dearborn. Sci Am S 81:274-5 Ap 29 '16

Imhoff tanks

Columbus changes sewage tank to Imhoff type. il Eng Rec 72:701-2 D 4 '15

Dr. Travis and the Imhoff tank. H. A. Roechling. Eng N 76:809 O 26 '16

Eight years of Imhoff tank design and operation. K. Imhoff. il diags Eng N 75:14-19, 52-5 Ja 6-13 '16

Imhoff tank and Dunbar filters at Ennis, Tex. diags Eng N 75:867 Mv 4 '16

Imhoff tanks and sprinkling filters, Cleburne, Tex. R. E. McDonnell. il diags Eng N 76:1028-30 N 30 '16

Isolated sewage-treatment plants recommended for lake cities north of Chicago. Eng Rec 74:656-8 N 25 '16

Largest Imhoff tank plant nearly ready to treat Rochester's sewage. C. A. Poole. il diags plan Eng Rec 73:204-8 F 12 '16

Lime to correct acid sludge in Imhoff sewage tanks. G. W. Fuller. Eng N 75:572-3 Mr 23 '16

Lime to correct acid sludge in Imhoff sewage tanks. W. L. Stevenson. Eng N 75:430-1 Mr 2 '16

Operation of Baltimore sewage disposal plant. G. J. Requardt. diag Munic J 41:538-41 N 2 '16

Remarkable efficiency test of Imhoff tank at Chelsea, Okla. H. V. Hinckley. Eng & Contr 46:232-3 S 13 '16

Results of first year's experiments with small sewage treatment plants by U. S. public health service. L. C. Frank. Eng & Contr 45:420-2 My 3 '16

Separate sludge digestion improves Imhoff-tank operation by keeping sewage fresh. K. Imhoff. diag Eng Rec 74:401-2 Jl 22 '16

Sewage disposal system for small towns. P. Hansen. plans Metal Work 84:731-2 D 10 '15

Sewage gas tank utilized for light and heat. C. C. Hommon. il Eng Rec 73:182-3 F 5 '16

Sewage treatment plant at Rochester, New York. diags Munic Eng 50:180-2 My '16

Sewage-treatment works for Altamont Y. W. C. A. camp. H. W. Taylor. il Eng N 74:1219-20 D 23 '15

Steel wall forms for Imhoff tank construction at Columbus sewage treatment plant. il Eng & Contr 46:31 Jl 12 '16

Year's operation of Fitchburg sewage works. F. W. Jones. Eng Rec 74:565-6 N 4 '16

See also Sewage disposal; Sewage tanks

Imitation products

Imitation as pioneer of the genuine. Sci Am S 81:121 F 19 '16

Immigrants

Federal immigration service and the railroads. W. L. Stoddard. Ry Age 60:29 Ja 7 '16

"Wop" in the track gang. D. T. Ciolli. Ry R 59:373-5 S 16 '16; Discussion. 59:559 O 21 '16

See also English language (for foreigners)

Immigration

Immigration in the future. Coal Age 9:303-4, 470 F 12, Mr 11 '16

Immunity

Essential oils and immunity. Sci Am S 82:165 S 9 '16

Impact tubes

Impact tube for measurement of fluids. S. A. Moss. diags Am Soc M E J 38:869-76 N '16

Impellers

Laying out cycloidal pump impellers. G. Luck. diags Mach 22:589-90 Mr '16

Imperial trains

W. S. Hiatt. Ry Age 61:119 Jl 21 '16; Same. Sci Am S 82:185 S 16 '16

Imposition.

See Printing, Practical—Imposition, etc.

Incandescent lamps.

See Electric lamps, Incandescent

Incinerators.

See Refuse incinerators

Inclined railroads.

See Mountain railroads

Income tax

Dividends and the new income tax law. W. F. Weiss. J Account 22:343-52 N '16

Income tax department. J. B. Niven. *See* monthly numbers of the Journal of accountancy

Revenue bill 1916. J. B. Niven. J Account 22:215-20 S '16

Incubators, Electric

Electric incubators, brooders and egg testers. il Elec W 67:504 F 26 '16

Hatching and raising chicks by electricity. il Elec W 67:1006 Ap 29 '16

Indene

Coumarone resin and its uses. C. Ellis and L. Rabinovitz. J Ind & Eng Chem 8:797-801 S '16

L'Indépendance belge

Belgian newspaper moved to London. D. Lightbourn. Inland Ptr 56:485-6 Ja '16

Indexes

Journal of the Western society of engineers index; volumes 1-20 (1896-1915). W Soc E J 20:1-89 D '15

See also Card system in business; Indexing

Indexing

Classification and filing of engineering data. K. C. Walker. Int Marine Eng 21:295-7 Je '16

Engineers' technical file. F. Lavis; L. B. Krause. Eng Rec 73:122 Ja 22 '16

Engineers' technical file should be small, up-to-date and easily kept. L. B. Krause. Eng Rec 72:760-1 D 18 '15

Filing periodical literature. F. E. Weise. Ry R 57:757 D 11 '15

Reference library of naval architecture. J. K. Christmas. Int Marine Eng 21:295 Je '16

Titles for, and indexes of, engineering articles. A. M. Wolf. Eng N 75:507-8 Mr 16 '16

See also Files and filing (documents)

Indexing (machine work)

Determining indexing movements for angles; tables. Mach 22:481-3 F '16

India

Ventilation in India. Engineer 122:102-3 Ag 4 '16

See also Geology—India; Mines and mineral resources—India

Commerce

Opportunities for American capital in India. N. M. Marshall. Am Ind 16:34 Ja '16

Trade prospects in British India. J. K. Goodrich. Am Ind 16:30-1 F '16

Industries and resources

Development of mechanical engineering in India. A. Chatterton. Engineer 122:44-5 Jl 14 '16

Indian jute industry. C. C. McLeod. Sci Am S 82:218-19 S 30 '16

See also Mines and mineral resources—Burma; Mines and mineral resources—India

Railroads

See Railroads—India

India-rubber.

See Rubber

Indiana electric light association

8th annual convention, Fort Wayne, Sept. 12-14. Elec R & W Elec'n 69:496, 543 S 16-23 '16; Elec W 68:556, 606 S 16-23 '16

Indiana gas association

President's address. J. H. Maxon. Am Gas Light J 104:275-6 My 1 '16

Indiana sanitary and water supply association

9th annual convention, Indianapolis, Feb. 2-5. Munic J 40:250-1 F 17 '16

Indiana society of sanitary engineers, formerly

Indiana state association of master plumbers 20th annual convention, Fort Wayne, Feb. 28-Mar. 1. Dom Eng 74:301-5 Mr 4 '16; Metal Work 85:358-9 Mr 10 '16

Indianapolis, Indiana**Bridges**

Construction of Washington street arch bridge. plan Eng N 74:1142-4 D 9 '15

Indianapolis, Indiana—Bridges—Continued

Four-span steel-arch bridge at Indianapolis, Ind. *il* diags Eng N 75:596-8 Mr 30 '16

Public works

Flood protection in Indianapolis. *il* Munio Eng 50:124-7 Ap '16

Rapid transit

Individual contract in Indianapolis. Elec Ry J 48:679-81 S 30 '16

Indians of North America**Antiquities**

Nacoochee mound investigated. Sci Am S 82:343 N 25 '16

See also Mounds

Art

Genetic relations of certain forms in American aboriginal art. C. Wissler. Sci Am S 82:285 O 28 '16

Music

Indian music. Sci Am S 81:256 Ap 15 '16

Indicator diagrams

Clipboard for analyzing indicator cards. H. K. Fox. *il* Ry Mech Eng 90:504 O '16

Compression from a mechanical point of view. F. R. Low. diags Power 44:674-9 N 14 '16

Defective indicator diagrams from cylinders, valve chambers and receivers; accumulated in years of practical engineering experience. J. W. De Vore. Power 43:505 Ap 11 '16

Diagrams without an indicator. B. Copping. Power 43:229 F 15 '16

Diesel engines with low compression. W. H. Watkinson. diags Engineer 122:266-7 S 22 '16;

Same cond. Am Soc M E J 38:933-4 N '16

Effects of shifting eccentrics. F. G. Baender. diags Power 44:67-8 J1 11 '16

Indicating the ammonia compressor. R. H. Karl. *il* Power 43:586-9, 687-9, 911-13; 44:121-3, 263-5 Ap 25, My 16, Je 27, J1 25, Ag 22 '16

Indicator-diagram peculiarities. T. J. Rogers. diags Power 44:234-5 Ag 15 '16

Laboratory tests of a consolidation locomotive. E. C. Schmidt, J. M. Snodgrass and R. B. Keller. diags Ill U Eng Exp Sta Bul 82:115-18 '15

Locomotive indicator diagrams. M. C. M. Hatch. *il* diags Power 44:56-7 J1 11 '16

Measuring indicator diagrams. W. C. Strott. diags Power 43:299 F 29 '16

Steam indicator scale. E. S. Clark. Power 44:206-7 Ag 8 '16

Study of indicator diagrams from a compound Corliss. V. R. Gage. Power 44:196-7 Ag 8 '16; Abstract. Am Soc M E J 38:762 S '16

Will Quizz, jr.; method of constructing a theoretical indicator diagram by measurement. diag Power 42:822-4 D 14 '15

Indicators

Continuous engine indicator. diag Power 43:282 F 29 '16

Industrial potentiometer temperature indicator; pyrovolter. *il* Met & Chem Eng 15:430-1 O 1 '16

Ingenious valve indicator. S. F. Jeter. *il* Power 43:913 Je 27 '16; Same cond. Eng & Min J 102:260 Ag 5 '16

Low oil level indicator. M. Saller. *il* Power 44:69 J1 11 '16; Same. Coal Age 10:270 Ag 12 '16

Recent developments in optical indicators. diags Horseless Age 36:418-19 N 1 '15

Simple compression indicator. *il* Power 43:49 Ja 11 '16

Xander universal electric test indicator for surface gage. *il* Sci Am 114:130 Ja 29 '16; Mach 22:530 F '16

Indicators and test papers

Researches on quinazolines; a new and sensitive indicator for acidimetry and alkalimetry, and for the determination of hydro-genion concentrations between the limits of 6 and 8 on the Sorensen scale. M. T. Bogert and G. Scatchard. Am Chem Soc J 38:1606-15 Ag '16

Study of indicators for the determination of temporary hardness in water. J. F. Norton and H. I. Knowles. Am Chem Soc J 38:877-84 Ap '16

Indigo

Brief of interested industries recommends duties on indigo and alizarin. Textile World 51:3447 Ag 5 '16

Indigo phase of dyestuff situation. L. W. Cronkhite. Textile World 51:2093+ Ap 29 '16

Rapid volumetric determination of indigo. S. M. Jones and W. Spaans. diags J Ind & Eng Chem 8:1001-2 N '16

Indigo, Artificial

Origin of synthetic indigo. H. Brunck. Textile World 51:901+ Ja 29 '16

Indo-China, French**Industries and resources**

Chemical and the mineral industry of French Indo-China. Met & Chem Eng 15:605-6 N 15 '16

Zinc mines of Tonkin. L. P. Briggs. Eng & Min J 102:900-2 N 18 '16

Inductance

Inductance of conductors at close spacings. F. B. Silsbee. Elec W 68:125-6 J1 15 '16

Power factor explained. F. A. Annett. diags Power 44:4-7 J1 4 '16

Induction coils

High efficiency induction coil; with detailed instructions for building. L. B. Laruncet. diags Sci Am S 80:412-14 D 25 '15

See also Electric transformers; Electromagnets; Mutual inductance

Induction motors. See Electric motors**Inductive interference. See** Electric lines—Inductive interference**Industrial accidents. See** Accidents, Industrial**Industrial arbitration. See** Arbitration, Industrial**Industrial arts**

See also Agriculture; Architecture; Book-binding; Building; Cabinet work; Chemistry, Technical; Commerce; Dyes and dyeing; Electric engineering; Engineering; Engraving; Factories; Foundry practice; Glass manufacture; Industrial education; Industry; Inventions; Machine shop practice; Machine shops; Machinery; Manufactures; Metallurgy; Occupations, Dangerous; Painting, Industrial; Patents; Photography; Plumbing; Pottery; Printing; Shipbuilding; Tanning; Textile industry and fabrics; Turning; Waste products; Weaving; Woodwork

Industrial betterment

Christmas talk on fellowship. C. Howard. Ry R 57:838-9 D 25 '15

Congress of human engineering held at Ohio state university. Iron Tr R 59:964-5 N 9 '16

Developing the human side in industry. F. H. Rindge, jr. Iron Age 97:1264-5 My 25 '16

Employment and service. O. P. Geier. Iron Age 98:1123 N 16 '16

Expensive slums. Met & Chem Eng 15:612-13 D 1 '16

Human chemistry of steel. D. Wells. Iron Tr R 58:1049-50 My 11 '16

Human factor. Factory 16:352+, 468+, 17:36+, 342+, 428+, 542-3 Ap-May, J1, S-N '16

Human factor in foundry production. L. D. Burlingame. *il* Iron Age 98:632-5 S 21 '16; Same. Iron Tr R 59:592-4 S 21 '16; Same. Foundry 44:466-8 N '16

Human factor in industry. F. H. Newell. Eng N 76:939 N 16 '16

Importance of the human factor. F. H. Rindge, jr. Eng & Min J 102:543-5 S 23 '16

Revolutionary trend of foreign labor. D. C. Brewer. Textile World 51:4131+ S 23 '16; Same. Am Ind 17:13-15 O '16

See also Bonus system; Coal miners; Efficiency, Industrial; Employees; Factory sanitation; Hours of labor; Housing problem; Industrial education; Industrial service movement; Insurance, Industrial; Profit sharing; Safety devices and measures; Saving; Scientific management; Welfare work in industry; Workmen's compensation

Industrial buildings

Development in heating and ventilating industrial buildings. E. L. Hogan. diags Am Soc Heat & V E 21:246-53 '15; Same. Metal Work 83:263-5 F 12 '15; Same. Dom Eng 70:239-41 F 20 '15; Discussion. Am Soc Heat & V E 21:253-5 '15

Does it pay to improve manufacturing and industrial buildings architecturally? G. C. Nimmons. il plans Brickb 25:217-30, pl 137-52 S '16

Standardized industrial buildings. W. J. Austin. diags Iron Age 97:426-8 F 17 '16

See also Department stores; Factories; Foundries

Industrial clubs. See Factory clubs

Industrial conference board, National. See National industrial conference board

Industrial diseases. See Diseases, Industrial

Industrial education

Constructive inferences regarding industrial training. W. S. Conant. Am Ind 16:28-30 Mr '16

Educational preparedness vs. industrial progress. W. H. Dooling. Mach 23:17 S '16

Effect of technical education upon the leather industry. A. Rogers. il Sci Am 114:14-15 Ja 1 '16

Industrial militarism; government training to develop the individual. J. L. Mahin. Sci Am S 81:150-1 Mr 4 '16

Industrial organization and the technical schools. D. S. Kimball. Eng M 52:104-8 O '16

Manual training vs. trade training. E. H. Fish. Mach 22:505 F '16

Scheme to interest British manufacturers in textile schools and research work. Textile World 51:3899 S 9 '16

Sphere of the scientific and technical press in relation to technical education and research. A. P. M. Fleming. Illum Engr 9:187-90; Discussion. 190-7 Je '16

Sphere of the scientific and technical press in relation to technical education and research. W. Garnett. Illum Engr 9:154-66 My '16; Discussion. 9:197-203 Je '16

Technically trained foreman. A. Rogers. il Sci Am 114:577+ Je 3 '16

Training of our captains of industry. R. Hadfield. Met & Chem Eng 15:171-2 Ag 15 '16

Training the apprentice; the time element in shop work. T. H. Alvord. Mach 22:756 My '16

University and the chemical industry; Mass. Tech. night at meeting of New York section of American chemical society. Met & Chem Eng 13:939-41 D 15 '15

See also Apprentices; Corporation schools; Engineering education; Industrial fellowships; Manual training; Railroad education; Schools and shops; Cooperation of; Scientific management—Study and teaching; Technical education; Trade schools; Vocational education

Industrial efficiency. See Efficiency, Industrial

Industrial electric heating. See Electric heating, Industrial

Industrial fellowships

Five years' progress in the Industrial fellowship system. Sci Am S 82:269 O 21 '16

Illinois gas research fellowships. Gas Age 38:201 Ag 15 '16

Industrial hygiene. See Diseases, Industrial; Hygiene, Industrial

Industrial insurance. See Insurance, Industrial

Industrial inventory. See Naval consulting board—Industrial inventory

Industrial laws and legislation

See also Foundry laws; Mining laws; Workmen's compensation

Industrial lighting. See Factories—Lighting

Industrial locomotives. See Locomotives, Industrial

Industrial management. See Scientific management

Industrial militarism; government training to develop the individual. J. L. Mahin. Sci Am S 81:150-1 Mr 4 '16

Industrial organization. See Organization in industry

Industrial plants

See also Electric plants; Factories; Foundries; Iron works; Machine shops; Metallurgical plants; Steel works

Industrial preparedness. See United States—Industries and resources

Industrial railroads. See Railroads, Industrial

Industrial relations committee

Attacks on business interests. Am Ind 16:27-8 D '15

Industrial research

Advanced research on public problems; opinion of alumni of University of Michigan. Eng Rec 74:552-3 N 4 '16

Advisory council for the organization and development of scientific and industrial research. Engineer 121:259-60 Mr 24 '16

Blazing a trail for the industries. H. Knowles. il Sci Am 115:206+ S 2 '16

Bringing research and business in contact. Elec R & W Elec'n 69:831-2 N 11 '16

Chemical engineering in the university and its relation to the industries. J Ind & Eng Chem 8:2-4 Ja '16

Coal-mine research. J. F. K. Brown. Coal Age 9:446-7 Mr 11 '16

Coming age of research. Sci Am 114:634 Je 17 '16

Co-operation in industrial research; symposium at Washington meeting of American electrochemical society. Met & Chem Eng 14:476-7 My 1 '16

Engineering experiment station of the University of Illinois. E. B. Paine. Am Inst E E Pro 34:2421-7 O '15; Discussion. 35:504-5 Ap '16

Establishment of industrial research stations advocated. Am Gas Light J 105:43 Jl 17 '16

Industrial research and the scientific and technical press. L. Gaster. Illum Engr 9:75-6, 116 Mr-Apr '16

Industrial research in Australia. Engineer 121:339 Ap 21 '16

Interim report of the committee on research. Illum Engr 9:172-7 My '16

Leadership through industrial research. Eng Rec 74:639 N 25 '16

National physical laboratory—its work and aims; abstract. W. Rosenhain. Am Soc M E J 38:941-3 N '16

Naval consulting board of the United States. L. H. Baekeland. Met & Chem Eng 13:943-6 D 15 '15; Same. J Ind & Eng Chem 8:67-70 Ja '16; Excerpts. Elec W 66:1363-4 D 18 '15

Opportunities for young electrical engineers in research and testing. P. S. Millar. Elec W 67:1416-17 Je 17 '16

President's address to the engineering section of the British association. G. Stoney. Engineer 122:205-7 S 8 '16; Excerpts. Elec W 68:870-1 O 23 '16

Relation of pure science to industrial research. J. J. Carty. Am Inst E E Pro 35:1411-20 O '16; Same cond. Am Soc M E J 38:940-1 N '16

Research and preparedness. W. Beardmore. Eng M 51:603-4 Jl '16

Research needed in automobile factories. P. Ten Broeck. Met & Chem Eng 15:552 N 15 '16

Research organization. W. R. Whitney. Gen Elec R 19:572-8 Jl '16

Scientific and industrial research; report of the Advisory council. Engineer 122:187-8, 219-20, 230-1 S 1-15 '16; Abstract. Illum Engr 9:277-80 S '16

Sphere of the scientific and technical press in relation to technical education and research. A. P. M. Fleming. Illum Engr 9:187-90; Discussion. 190-7 Je '16

Sphere of the scientific and technical press in relation to technical education and research. W. Garnett. Illum Engr 9:154-66 My '16; Discussion. 9:197-203 Je '16

University and industry. W. H. Walker. J Ind & Eng Chem 8:63-5 Ja '16

See also Chemical research; Chemistry, Technical; Concrete—Experiments; Laboratories; Scientific research; also National research council

Newlands bill

Engineering research stations. Am Soc M E J 38:653 Ag '16

Industrial research—Newlands bill—*Continued*

Newlands bill to establish engineering experiment stations. W. R. Whitney. Eng M 51: 114 Je '16

Research and the Newlands bill. W. R. Whitney. Met & Chem Eng 14:565-6, 621-3 My 15-Je 1 '16

Research organization. W. R. Whitney. Gen Elec R 19:572 JI '16

Industrial service movement

Can the human side of engineering be taught. F. H. Rindge, jr. Il Ind Management 52:206-12 N '16

Recent developments. F. H. Rindge, jr. Am Soc M E J 38:724-5 S '16

Industrial towns. See Mining towns; Model towns

Industrial traffic league, National. See National industrial traffic league

Industries, Electric. See Electric industries

Industry

Industrial progress of sixty years; the lifetime of the Iron age. Il Iron Age 97:31-8 Ja 6 '16

Science linked with industry. R. C. MacLaurin. Met & Chem Eng 15:43-4 JI 1 '16

What industry faces within and without. J. A. Emery. Iron Age 97:1073-5 My 4 '16

What is preparedness? H. L. Gantt. Il Eng M 51:804-12 S '16

See also Efficiency, Industrial; Government regulation of industry

Infantile paralysis

Baffling epidemic of infantile paralysis. H. W. Frauenthal. Il Sci Am 115:238-9 S 9 '16

Infantile paralysis; its nature, manner of conveyance and means of prevention. S. Flexner. Sci Am S 82:82-3 Ag 5 '16

Why health authorities are baffled. Sci Am 115:94 JI 29 '16

Infectious diseases

School-spread of contagious disease. M. Solis-Cohen. Sci Am S 81:134-5 F 26 '16

Transmissibility of diseases, and the public health. A. C. Abbott. J Fr Inst 181:629-42 My '16

See also Bacteriology; Leprosy; Plague; Typhoid fever

Inflammable liquids

See also Gasoline; Petroleum

Inflammable mixtures

Hazards in handling gasoline. G. A. Burrell. U S Bur Mines Tech Pa 127:1-11 '15; Abstract. Power 43:126-7 Ja 25 '16; Excerpt (Inflammability of gasoline and of gasoline vapor). Sci Am S 81:203 Mr 25 '16

Ignition of explosive gas mixtures by electric sparks; with discussion. J. D. Morgan. diags Inst E E J 51:196-208 Ja 15 '16; Abstract. Elec W 67:274-5 Ja 29 '16; Abstract. Sci Am S 81:227 Ap 8 '16

Inflammability of mixtures of gasoline vapor and air. G. A. Burrell and H. T. Boyd. diags U S Bur Mines Tech Pa 115:1-16 '15; Same cond. J Ind & Eng Chem 7:414-17 My '15; Summary. Met & Chem Eng 13:802 N 1 '15; Summary. Power 42:781-2 D 7 '15

Limits of inflammability of mixtures of methane and air. G. A. Burrell and G. G. Oberfell. diags U S Bur Mines Tech Pa 119:1-27 '15

Influence lines. See Strains and stresses

Ingots, Steel. See Steel ingots

Ingraham highway

National highways in Florida. Mrs. K. Munroe. Il Am For 22:659-60 N '16

Injectors

Lodge-room engineering. W. O. Rogers. Power 43:442-4 Mr 28 '16

Will Quizz, jr. Power 43:78-9 Ja 18 '16

Injuries. See Accidents

Injuries from electricity. See Electricity, Injuries from

Ink

Doping inks. J. O. May. Inland Ptr 57:763-4 S '16

Printing ink and printing paper; technical details. Sci Am S 81:43 Ja 15 '16

Smell of printing-ink. Inland Ptr 57:94-5 Ap '16

Inscriptions, Cuneiform

Newly discovered story of the garden of Eden. Il Sci Am 113:558+ D 25 '15

Insecticides**Analysis**

Reduction of As^v to As^{III} by cuprous chloride and the determination of arsenic by distillation as arsenic trichloride. R. C. Roark and C. C. McDonnell. diag J Ind & Eng Chem 8: 327-31 Ap '16

Insects

Insects that perplex naturalists. H. Bastin. Il Sci Am S 81:264-5 Ap 22 '16

Metabolism of insects. A. Lameere. Sci Am S 82:178-9, 202 S 16-23 '16

Insects, Injurious and beneficial

Insect enemy of the white pine. P. L. Buttrick. Il Am For 22:395-6 JI '16

Insects and war. A. E. Shipley. Sci Am S 81: 191-2, 206-7 Mr 18-25 '16

Insects as spore carriers. Sci Am 114:179 F 12 '16

See also Insecticides; also names of insects, e.g. Cockroaches, Locusts

Inspection

How we have answered some factory management problems. H. F. Albright. Il Factory 17:135 Ag '16

Inspecting lathes. J. J. Ralph. diags Mach 23: 7-10 S '16

Inspection chart in use at plant of the Hamilton mfg. co., Two Rivers, Wis. Power 44: 303 Ag 29 '16

Inspection department in a foundry. C. B. Wilson. Iron Age 96:1478-80 D 23 '15

Making sure that you get what you buy. W. J. Tewksbury. Factory 17:662-5 D '16

Municipal supply department; audit and inspection. H. M. Foster. Munic Eng 51:42-4 Ag '16

Relation of the inspection department to the management. F. B. Corey. Ind Eng 15:17-18 Ja '15; Same. Iron Age 95:566-7 Mr 11 '15; Same. Mach 22:863-4 Je '16

Step-by-step inspection. W. F. Rockwell. Factory 17:25-6 JI '16

See also Boiler inspection; Bridge inspection; Building inspection; Car inspection; Electric inspection; Locomotives—Inspection; Mine inspection; Pavements—Inspection

Inspection of pavements. See Pavements—Inspection

Inspection of plumbing. See Plumbing inspection

Inspiration consolidated copper co.

History of the flotation process at Inspiration. R. Gahl. flow sheets diags plans Am Inst Min E Bul 117:1627-81 S '16; Same. Met & Chem Eng 15:393-405, 455-64 O 1-15 '16; Discussion. 118:1870-5; 119:1879-88 O-N '16

Mine and mill plant of the Inspiration consolidated copper co. H. K. Burch. flow sheet Il diags plan Am Inst Min E Bul 117:1467-1500 S '16; Same cond. Eng & Min J 102: 411-15, 457-60, 537-42 S 2-9, 23 '16

Operations in August, 1916. Eng & Min J 102: 678-9 O 7 '16

Ore-drawing tests and the resulting mining method of Inspiration consolidated copper co. G. R. Lehman. Il diags Am Inst Min E Bul 117:1501-14 S '16

Institute for government research

Institute for government research; organization. Ry R 58:403 Mr 18 '16

Institute of accountants in the United States of America

Annual meeting. New York, Sept. 19. J Account 22:303-6 O '16

Board of examiners; rules and regulations. J Account 22:451-4 D '16

Merger of the American association of public accountants in the Institute of accountants in the United States of America. J Account 22:288-95 O '16

Institute of metals

Annual general meeting. Engineer 121:275-6, 292-4 Mr 31-Apr 7 '16

Autumn meeting, Sept. 20. Engineer 122:284 S 29 '16

Institute of metals, American. See American institute of metals

Institution of civil engineers

Presidential address, M. Fitzmaurice, Engineer
122:424-5, 434 N 10-17 '16

Institution of electrical engineers

Addresses at presentation by D. J. Blakley of
Faraday books and papers. Inst E E J 54:
114-19 D 15 '15

Inaugural address of the president, C. P.
Sparks. Inst E E J 54:1-11 D 1 '15; Same.
Engineer 120:503-4, 547-8 N 26, D 10 '15;
Excerpts (Reasons for electrical progress).
Elec R & W Elec'n 67:1110-11 D 18 '15

The Institution; address to the students' section.
J. E. Kingsbury. Inst E E J 54:189-95
Ja 15 '16

Relics of Michael Faraday; gift to Institution
of electrical engineers. Engineer 120:498-9
N 26 '15

Report of the council for presentation at the
annual general meeting of 11 May, 1916; in-
cluding revenue account for 1915. Inst E E J
54:550-63 My 1 '16

Institution of mechanical engineers

Annual general meeting, Feb. 18. Engineer
121:170-1 F 25 '16

Meeting, Nov. 19. Engineer 120:498 N 26 '15
President's address. W. C. Unwin. Engineer
122:376 O 27 '16

Institution of mining engineers

27th annual general meeting, Glasgow. Engi-
neer 122:256-7 S 22 '16

Institution of naval architects

Spring meeting, April 12-13; discussion of
freeboard etc. Engineer 121:313-14, 342-4,
360-1 Ap 14-28 '16

Instruments

See also Drawing instruments; Measuring
instruments; Surgical instruments; Survey-
ing instruments

Insulation

Alabama power company's system and its op-
eration. H. H. Dewey and W. E. Mitchell. il
diag map Gen Elec R 19:518-33 Je '16

Anti-electrolysis insulator. Metal Work 85:366
Mr 10 '16

Bakelite-Dilecto—a new insulating material.
Elec R & W Elec'n 68:479-80 Mr 11 '16

Cable suitable for industrial plant subway
system. H. D. Austin. Elec W 66:1415-16 D 25
'15

Construction of high-tension cable joints. P.
Torchio. il Elec W 67:873-5 Ap 15 '16

Design of Darien radio towers. C. A. Carlson.
il diags Eng N 75:546-9 Mr 23 '16

Design of million-volt experimental transform-
er. G. L. Bayley. il Elec W 67:419-21 F 19
'16

Disk-strain and pin-type insulators invented
by Louis Steinberger. il Elec R & W Elec'n
68:1130 Je 17 '16; Elec W 67:1065 My 6 '16

Disk-type strain and pin-supported insulators.
il Elec W 67:1065 My 6 '16

Economizing in duct space by use of sector
cable. il Elec W 67:427-9 F 19 '16

Elasticity and strength of stoneware and
porcelain. J. E. Boyd. il Am Soc M E J 38:
222-6; Discussion. 38:227-9 Mr '16

Electric conductors. C. P. Steinmetz. Gen Elec
R 19:611-12 J 1 '16

Electric insulators; abstract. Elec W 68:35 J 1
'16

Electrical insulation. il Elec W 68:1113 D 2 '16
Feeder insulator for use on curves. il diag
Elec Ry J 47:281 F 5 '16

German experiments on carbon tetrachloride
as an insulating fluid. Sci Am S 82:355 D 2
'16

Hard paper for insulation; pertinax. K.
Fischer. Elec R & W Elec'n 67:1168 D 25 '15

High-tension suspension insulator. il diags
Elec R & W Elec'n 69:38-9 J 1 '16

Insulating oils. diags Inst E E J 54:497-504 Ap
1 '16

Insulating the trolleys of a traveling crane. J.
Shortt. diags Elec R & W Elec'n 69:71 J 1 8
'16

Insulating underground cable joints by the
Conducell method. il Elec R & W Elec'n 68:
823-4 My 6 '16

Insulation measurements; abstract. J. F. van
Lonkhuyzen. diags Elec W 66:1267 D 4 '15

Insulation of joints in high-tension cables. il
diag Elec W 67:558-60 Mr 4 '16

Insulator clamps. diags Elec W 67:1181 My 20
'16

Insulator failures under transient voltages.
W. D. Peaslee. il diags Am Inst E E Pro
35:1237-44 Ag '16

Lightning; failure of insulation. F. W. Peek,
jr. il diags Gen Elec R 19:586-94 J 1 '16

Making cable joints with formed insulation. il
Elec W 68:573-4 S 16 '16

Manufacturing electrical porcelain under mod-
ern conditions. il Elec R & W Elec'n 69:524-
5 S 16 '16

Method of insulating conductors at angles of
tower lines that decreased cost of construc-
tion. H. B. Sweeny. diags Elec W 67:601 Mr
11 '16

Method of insulating traveling-crane trolley
wires from crane girder. W. D. Wilson. il
Elec R & W Elec'n 68:642 Ap 8 '16

Method of reducing expense of replacing ap-
paratus-supporting insulators. il Elec W 67:
720 Mr 25 '16

Methods for working on live high-voltage
lines. J. O. Hardin. il Elec W 67:1346-50 Je
11 '16

New method of grading suspension insulators.
R. H. Marvin. diags Am Inst E E Pro 35:
871-8 Je '16

Pipe insulators. il Metal Work 85:76 Ja 7 '16

Porcelain insulators for grid suspension. J. W.
Brown. il Elec Ry J 47:1144 Je 17 '16

Rewinding induction motors. G. Sabonjian.
diags Power 44:198-9 Ag 8 '16

Rotor-bar insulation. Power 44:299 Ag 29 '16

Safe wiring of bathroom fixtures. Elec R & W
Elec'n 69:858 N 11 '16

Simplifications in design of outdoor stations.
M. M. Samuels. il diags Elec W 67:865-8 Ap
15 '16

Substitute for matting that wears well and is
cheaper than rubber and linoleums. R. I.
Elkin. Elec W 67:1366 Je 10 '16

Suggested reasons for insulator deterioration
and its prevention. Elec W 67:1107-8 My 13
'16

Temperature rise of insulated lead-covered
cables. R. C. Powell. Am Inst E E Pro 35:
1281-1306 Ag '16

Wood-strain insulators for Brooklyn. diag Elec
Ry J 47:224 Ja 29 '16

See also Electric cables; Electric resis-
tance; Electric wire and wiring; Galalith

Testing

Effect of high continuous voltages on air, oil,
and solid insulations. F. W. Peek, jr. il diag
Am Inst E E Pro 35:773-90 Je '16; Abstract.
Elec W 68:331-2 Ag 12 '16; Discussion. Am
Inst E E Pro 35:1501-8 O '16

Effect of transient voltages on dielectrics.
F. W. Peek, jr. il Am Inst E E Pro 34:1695-
1747 Ag '15; Discussion. 35:225-35 F '16

Experiences in testing porcelain. E. E. F.
Creighton. Am Inst E E Pro 35:865-70 Je
'16; Discussion. 35:1471-3 O '16

Experimental data concerning the safe op-
erating temperature for mica armature-coil in-
sulation. F. D. Newbury. diags Am Inst E E
Pro 34:2555-72 O '15; Abstract. Elec W 66:
1205-6 N 27 '15; Discussion. Am Inst E E
Pro 35:272-87 F '16

Factors determining the safe spark-over vol-
tage of insulators and bushings for high vol-
tage transmission lines. F. W. Peek, jr. Gen
Elec R 19:483-7 Je '16

Field testing of insulators and effect of trans-
ients; abstracts and discussions of papers
by B. G. Flaherty and W. D. Peaslee. il
Elec W 68:571-2 S 16 '16

High-frequency oscillator for porcelain-insu-
lator testing. il diag Elec R & W Elec'n 68:
880-1 My 8 '15; Elec W 65:1207 My 8 '15; Ry
R 56:668 My 15 '15; Sci Am 114:127 Ja 29 '16

Investigation of dielectric losses with the
cathode ray tube. J. P. Minton. il Am Inst
E E Pro 34:1115-65 Je '15; Discussion. 35:
21-34 Ja '16

Megger and other tests on suspension insula-
tors. F. L. Hunt. Am Inst E E Pro 35:861-4
Je '16

Oil testing machine which gives true insula-
tion comparison of oils. il Elec W 68:574-5 S
16 '16

Practical tests of insulators. diags Elec R & W
Elec'n 68:608 Ap 1 '16

Insulation—Testing—Continued

- Rules for insulation tests on underground d.c. feeders. Elec Ry J 48:286 Ag 12 '16
- Testing equipment for high-frequency tests of insulators for busbar supports, disconnecting switches, etc. il Elec R & W Elec'n 69:345 Ag 19 '16
- Testing for defective insulators on high tension transmission lines. B. G. Flaherty. il Am Inst E E Pro 35:1221-35 Ag '16
- Testing of electrical porcelain. E. E. F. Creighton and P. E. Hosegood. il diags Gen Elec R 19:479-83 Je '16
- Testing of underground cables with continuous current. O. L. Record. diags Inst E E J 54:608-16; Discussion. 616-38 Je 1 '16
- Testing plant materials for break-down voltage. H. A. Cozzens, jr. diags Elec W 67:598-9 Mr 11 '16
- Testing rubber insulation. A. A. Ladon. Met & Chem Eng 14:560 My 15 '16

Insulation (heat)

- Carey underground insulation. diags Power 43:621-2 My 2 '16
- Comparison of heat insulators. U S Bur Stand Circ 55:58-9 '15; Excerpt. Heat & Ven 12:46-7 D '15; Excerpt. Eng & Min J 101:1020 Je 10 '16
- Concrete-floor insulation. diag Power 44:345 S 5 '16; Same. Eng N 76:508-9 S 14 '16
- Electric arc furnace for laboratory use. O. P. Watts. il Met & Chem Eng 14:681-2 Je 15 '16; Abstract. Elec W 67:1481-2 Je 24 '16
- Electrical water heating in the household. J. L. Shroyer. Gen Elec R 19:863-4 O '16
- Electrically heated bomb furnace. D. F. Calhane and H. A. Lavene. il diags Met & Chem Eng 14:140-3 F 1 '16
- Heat insulating properties of commercial steam pipe coverings. L. B. McMillan. il diags Am Soc M E J 38:8-16 Ja '16; Abstract. Heat & Ven 13:28-35 Ja '16; Abstract. Power 43:469-74 Ap 4 '16; Discussion. Am Soc M E J 38:140-2 F '16
- Heat insulation tests. W. H. Wells. Heat & Ven 13:33-4 Je '16
- High temperature insulation. P. A. Boeck. diags Met & Chem Eng 14:225-9 F 15 '16; Same. J Ind & Eng Chem 8:371-5 Ap '16; Same cond. Iron Tr R 58:1047-9 My 11 '16; Same cond. Am Soc M E J 38:637-40 Ag '16; Abstract. Power 43:306-7 F 29 '16
- How coverings prevent loss of heat. il Iron Tr R 59:1004-6 N 16 '16
- Insulating boiler fire boxes on a concrete floor. diags Concrete 9:12 Jl '16
- Insulating underground steam piping. diags Metal Work 86:185 Ag 11 '16
- Loss of heat from steam-heated surfaces; abstracts. J. E. Petavel. Am Soc M E J 38:98-9 Ja '16; Metal Work 85:284 F 25 '16
- Measurement of the temperature drop in blast-furnace hot-blast mains. R. J. Wysor. diag Am Inst Min E Bul 106:2161-70 O '15; Same. Iron Tr R 58:435-7+ F 24 '16; Abstract. Iron Age 96:869 O 14 '15
- Overhauling the refrigeration plant. F. E. Matthews. Power 42:859-61 D 21 '15
- Passenger car steam heating plant at Atlantic City. N. J. C. A. Bingham. diags plans Heat & Ven 13:11-18 My '16
- Perfect heat insulation. C. Hering. Met & Chem Eng 14:298 Mr 15 '16
- Refrigeration in France. L. Marchis. Met & Chem Eng 14:190-1, 315-16 F 15, Mr 15 '16
- Santa Fe refrigerator cars. il diags Ry Mech Eng 90:135-9 Mr '16
- Testing of thermal insulators; abstract. H. C. Dickinson and M. S. VanDusen. Am Soc M E J 38:938-9 N '16
- Tests on a high-pressure pipe and boiler covering. Met & Chem Eng 14:551-2 My 1 '16

See also Steam pipe coverings

Insurance

See also Benefit societies

Insurance, Accident. See Insurance, Employers' liability

Insurance, Employers' liability

- Compensation in West Virginia. Coal Age 10:496 S 23 '16
- Workmen's compensation insurance; report of committee of New York electric railway association. Elec Ry J 48:60-2 Jl 8 '16

Workmen's compensation law and mine safety. H. M. Wilson. Coal Age 9:12-16 Ja 1 '16

See also Insurance, Industrial

Insurance, Fire

- Engineer and the business of fire insurance. J. P. Gray. Am Soc M E J 38:209-10 Mr '16
- Standing timber insurance. W. R. Brown. Am For 22:556-8 S '16

Insurance, Forest

- Standing timber insurance. W. R. Brown. Am For 22:556-8 S '16

Insurance, Health

- Committee of American manufacturers' association recommendations on minimum wage. Am Ind 16:29-30 Je '16
- Compulsory health insurance. Elec Ry J 47:603 Mr 25 '16
- Compulsory health insurance. R. M. Easley. Am Gas Light J 104:209-10 Ap 3 '16
- Health insurance. F. F. Dresser. Iron Age 98:1043-5 N 2 '16
- New menace of higher manufacturing costs. J. Nelson. Iron Age 98:87-9 Jl 13 '16

Insurance, Industrial

- Beneficial fund of Lehigh coal and navigation co. Coal Age 8:980-1 D 11 '15
- Master plumbers' compensation insurance. G. W. Hill. Dom Eng 74:135-6 Ja 29 '16
- Nevada-California power co. insures employees and adopts extensive welfare policy. Elec R & W Elec'n 68:26 Ja 1 '16
- Social relations of electric railways; report to American electric railway association. J. D. Mortimer, H. C. Bradley and E. W. Rice, jr. Elec Ry J 48:879-87 O 21 '16

See also Insurance, Employers' liability; Insurance, Health; Workmen's compensation

Insurance, Liability

- Cost of liability insurance. L. T. Block. Elec R & W Elec'n 67:1066-7 D 11 '15

Insurance, Mine

- Workmen's compensation law and mine safety. H. M. Wilson. Coal Age 9:12-16 Ja 1 '16

Insurance, Sickness. See Insurance, Health**Insurance, State and compulsory**

- Is state insurance accident prevention? J. P. Jackson. Eng Rec 74:420 S 30 '16
- Welfare (social) insurance. R. M. Potts. Am Ind 17:30-2 O '16

Insurance, Unemployment

- New menace of higher manufacturing costs. J. Nelson. Iron Age 98:89, 115 Jl 13 '16

Insurance, Workmen's. See Insurance, Industrial**Integrating sphere**

- Integrating photometric sphere, its construction and use. E. B. Rosa and A. H. Taylor. bibliog diags Illum Eng Soc 11:453-71; Discussion. 472-8 no 3 '16

Inter-branch accounts. See Accounting**Interchange of freight cars.** See Freight cars, Interchange of**Interchangeable mechanism**

- Gaging and inspection methods. D. T. Hamilton. il diags Mach 23:95-118 O '16

Intercolonial railway

- Is government ownership in Canada a failure? J. L. Payne. Ry Age 61:589-91 O 6 '16
- Why the Intercolonial railway is a failure. S. O. Dunn. Ry Age 61:629-32 O 13 '16

Interest

- Brothers all. A. S. Little. J Account 21:344-53 My '16
- Interest and cost. J Account 22:205-14 S '16
- Interest and interest tables. S. Walton. J Account 22:313-22 O '16
- Interest as construction cost. S. Walton. J Account 22:67-9 Jl '16
- Interest on capital. G. Mahon. J Account 22:253-8 O '16
- Interest on capital. W. P. Hilton. J Account 22:259-64 O '16
- Reasons for excluding interest from cost. G. O. May. J Account 21:401-9 Je '16

Interferometer

- Methods of measurement; interferometer. D. T. Hamilton. diags Mach 23:107-8 O '16

Intergrowths, Graphic. See Graphic intergrowths

- Interior decoration.** See House decoration; Ships—Interior decoration
- Interlocking plants**
Power equipment for alternating-current signaling at interlocking plants. H. M. Jacobs. *il diag Gen Elec R* 19:75-9 Ja '16
- Internal combustion engines.** See Gas and oil engines
- International association of municipal electricians**
21st annual convention, Baltimore, August 22-25. *Elec W* 68:404-5 Ag 26 '16; *Munic J* 41:270 Ag 31 '16; *Elec R & W Elec'n* 69:457-8 S 9 '16
- International competition.** See Competition, International
- International corporation, American.** See American international corporation
- International high commission**
Suggestions for the International high commission. *Am Ind* 16:22 Ap '16
- International law**
See also Blockade running; Monroe doctrine
- International railroad master blacksmiths' association**
23d annual convention, Chicago, August 15-17. *Ry Mech Eng* 90:463-9 S '16; *Ry Age* 61:316-20 Ag 25 '16; *Ry R* 59:277-9 Ag 26 '16
- International railway fuel association**
8th annual convention, Chicago, May 15-18. *Ry Age* 60:1081-7, 1120-30 My 19-26 '16; *Ry R* 58:717-28 My 20 '16; *Ry Mech Eng* 90:277-87 Je '16
- International railway general foremen's association**
12th annual convention, Chicago, Aug. 29-Sept. 1. *Ry Age* 61:405-10 S 8 '16; *Ry R* 59:339-40 S 9 '16; *Ry Mech Eng* 90:527-34 O '16
- International road congress, 1st**
Meeting at Worcester, Mass., Dec. 14-17, 1915. *Eng N* 74:1242-3 D 23 '15
Meeting, Worcester, Mass., Dec. 14-17, 1915. *Good Roads n s* 11:19-20 Ja 1 '16
Papers presented at the Worcester road congress, Dec. 14-17, 1915. *Good Roads n s* 11:9-18 Ja 1 '16
Worcester road congress, Dec. 16-17. *Good Roads n s* 10:324 D 18 '15
- International smelting company**
Flow-sheet of plant, Miami, Arizona. *Met & Chem Eng* 15:492 O 15 '16
- International trade conference**
Program of conference, New York city, Dec. 6-8, 1915. *Am Ind* 16:7-9 D '15
Summary of the proceedings of the conference, Dec. 6-8, 1915. *Am Ind* 16:7 Ja '16
- International typographical union**
Am I my brother's keeper? M. G. Scott. *Inland Ptr* 58:89-90 O '16
62d annual convention, Baltimore. *Inland Ptr* 57:805-8 S '16
- Interrupters**
Electro-chemical action on glass. F. F. S. Bryson. *il Sci Am S* 82:277 O 28 '16
New electrolytic interrupter. C. A. Oldroyd. *diags Sci Am S* 82:60-1 Jl 22 '16
- Interstate commerce commission**
Abstract of annual report from Nov. 1, 1914 to Oct 31, 1915. *Ry Age* 59:1121-4 D 17 '15
Annual report of I. C. C. safety division. *Ry Age* 60:95 Ja 21 '16
Government and American railroad needs. O. H. Kahn. *Ry Age* 60:199-201 F 4 '16; Abstract. *Ry R* 58:177-3 Ja 29 '16
Reorganizing the Interstate commerce commission. *Eng N* 74:1283 D 30 '15
29th annual report. *Ry R* 57:787-9 D 18 '15
See also Railroads—Rates; Railroads and state—United States
- Interurban railroads**
Developing interurban traffic. J. P. Griffin. *Elec Ry J* 47:993-6 My 27 '16
Efficiency through conservation of time in interurban traffic. E. C. Spring. *Elec Ry J* 46:1209-10 D 13 '15
Interurban electric railway finances. F. W. Doolittle. *Elec Ry J* 48:937 O 28 '16
- Interurban future never brighter. A. J. Boardman. *Elec Ry J* 48:725-6 O 7 '16
Present and future development of interurban railways. F. W. Doolittle. *Elec Ry J* 48:392-5 S 2 '16
See also Electric railroads
- Intrenchments**
Field fortifications, sieges and demolitions. T. M. Robins. *diags plan Eng & Min J* 101:514-20 Mr 18 '16
National defense—for engineer and contractor. P. S. Bond. *il diags plans Eng Rec* 73:422-5 Mr 25 '16
Trenching and mining operations; important underground maneuvers in the war. *il Sci Am S* 81:52 Ja 22 '16
Underground habitations on the firing line. *il Sci Am S* 82:168 S 9 '16
War game. G. von Horvath. *diags Sci Am* 114:532+ M 20 '16
Winter in the trenches. *il Sci Am S* 81:392 Je 17 '16
- Invar**
Invar and related nickel steels. *bibliog il dia U S Bur Stand Circ* 58:1-68 '16; Excerpts. *Sci Am S* 81:383-4 Je 10 '16; Summary. *Am Soc M E J* 38:827 O '16
- Inventions**
Epoch making inventions by Americans. *Am Gas Light J* 104:221 Ap 3 '16
See also Patents
- Inventories**
Approximating inventory. S. Walton. *J Account* 22:483-5 D '16
Continuous inventories; their preparation and value. H. E. Carver. *Am Inst E E Pro* 35:1545-57 N '16; Same cond. *Elec Ry J* 48:1053-4 N 18 '16
Counting stock at sight. *il Factory* 17:736+ D '16
How the Ford motor company takes inventory. *il Factory* 17:521-5 N '16
Inventories and gross profit based on selling valuations. W. C. Gray. *J Account* 21:189-91 Mr '16
Inventory records that follow cost changes. C. J. Berry. *Factory* 16:576-7 Je '16
Is it necessary to have inventory week? B. Fisher. *il Factory* 16:580-3 Je '16
Perpetual inventory of rough castings. H. A. Russell. *Foundry* 43:481-2 D '15
Power plant inventory. J. C. Henriques. *Elec Ry J* 47:616-18 Mr 25 '16
Symposium on inventories and appraisals of properties. C. L. Cory; W. G. Vincent, Jr.; W. J. Norton. *Am Inst E E Pro* 34:2131-58 S '15; Discussion. 35:236-63 F '16
- Invertase**
Adsorption of invertase. J. M. Nelson and E. G. Griffin. *Am Chem Soc J* 38:1109-15 My '16
Effect of sodium chloride upon the action of invertase. H. A. Fales and J. M. Nelson. *Am Chem Soc J* 37:2769-86 D '15
Influence of certain substances on the activity of invertase. E. G. Griffin and J. M. Nelson. *Am Chem Soc J* 38:722-30 Mr '16
- Investments**
American investments in South America. P. Farquhar. *Iron Age* 97:606-8 Mr 9 '16
Foreign investment of American capital. J. A. Farrell. *Iron Age* 97:316-17 F 3 '16; Same. *Iron Tr R* 58:291-3 F 3 '16
International opportunity opened to America. C. A. Stone. *Elec W* 67:9-10 Ja 1 '16
Utility bonds for savings banks; report of committee of Investment bankers' association. *Elec Ry J* 48:926-9 O 28 '16; Excerpt. *Elec W* 68:787 O 14 '16
See also Real estate business
- Iodates**
Differential iodimetry; determination of periodates, iodates, bromates and chlorates in the presence of each other. O. L. Barnebey. *Am Chem Soc J* 38:330-41 F '16
- Iodides**
Conductance of solutions of certain iodides in isoamyl and propyl alcohols. F. G. Keyes and W. J. Winninghoff. *diags Am Chem Soc J* 38:1178-87 Je '16

Iodimetry

Differential iodimetry; determination of periodates, iodates, bromates and chlorates in the presence of each other. O. L. Barnebey. *Am Chem Soc J* 38:330-41 F '16

Iodine

Diffusion of iodine in potassium iodide solutions. G. Edgar and S. H. Diggs. *diag Am Chem Soc J* 38:253-9 F '16

Iodine as a military antiseptic. *Sci Am* 115:350 O 14 '16

Method of exhibiting the velocity of iodine ions in solution. S. W. J. Smith. *diag Met & Chem Eng* 15:77 J1 15 '16

Ionic volute. See Scrolls (decorative design)

Ionium

Atomic weights of thorium and ionium. O. Högnischmid. *Met & Chem Eng* 13:966 D 15 '15

Ionization

Relations between the constants of dibasic acids and of amphoteric electrolytes. E. Q. Adams. *Am Chem Soc J* 38:1503-10 Ag '16

Theory of multiple ionization; a modification of the electrolytic dissociation theory. F. F. Heyroth. *Am Chem Soc J* 38:57-65 Ja '16

See also Radioactivity

Ions

Detections of ions in the atmosphere. *Sci Am* 82:176 S 9 '16

Hydrogen and chlorine ion activities of solutions of potassium chloride in 0.1 molal hydrochloric acid. H. S. Harned. *Am Chem Soc J* 38:1986-95 O '16

Method of exhibiting the velocity of iodine ions in solution. S. W. J. Smith. *diag Met & Chem Eng* 15:77 J1 15 '16

See also Dissociation; Electric discharges thru gases; Electrochemistry; Electrolysis; Electrolytes; Electrons; Ionization; Solution (chemistry)

Iowa. See Roads—Iowa

Iowa engineering society

28th annual meeting, Des Moines, Feb. 16-18. *Eng N* 75:437 Mr 2 '16

Iowa master plumbers' association

28th annual convention, Clinton, Feb. 22-23. *Dom Eng* 74:267-9 F 26 '16

Iowa state college, Ames, Iowa

Locomotive testing plant, Iowa state college. *il diags plan Ry* 57:716-18 D 4 '15

Iowa street and interurban railway association

General meeting, Dubuque, Iowa, May 10. *Elec Ry J* 47:895-902 My 13 '16

Iron

Action of gases on iron and steel. *Sci Am* 81:160 Mr 4 '16

Anodic relations of passive iron with notes on polarization potentials as influenced by external gas pressures. H. G. Byers and S. C. Langdon. *diags Am Chem Soc J* 38:362-74 F '16

Chemistry in the brass foundry. E. P. Later. *Foundry* 44:470-2 N '16

Condition of iron in the old Keokuk bridge. G. C. Hinckley. *il diag Eng N* 76:400-3 Ag 31 '16

Corrosion of metals; symposium at meeting of the Faraday society, Dec. 8, 1915. *Engineer* 120:571-3 D 17 '15

Effect of cooling on magnetic properties of iron and steel. E. Gumlich and W. Steinhäus. *Elec W* 67:501 F 26 '16

Effect of vacuum fusion upon the magnetic properties of pure open hearth iron. T. D. Yensen. *Met & Chem Eng* 14:585-6 My 15 '16; Same cond. *Iron Age* 97:1382-3 Je '16

Electrolytic iron. *Sci Am* 81:405 Je 24 '16

Furnace gas carburization of iron. T. H. Byrom. *Iron Tr R* 58:937-8 Ap 27 '16

Investigation into the magnetic behaviour of iron at very high frequencies with the aid of a Poulsen-arc generator. N. W. McLachlan. *diags Inst E E J* 54:480-8 Ap 1 '16

Observations upon the atmospheric corrosion of commercial sheet iron. E. A. Richardson and L. T. Richardson. *il Met & Chem Eng* 15:450-3 O 15 '16; Conclusions. *Iron Age* 98:778 O 5 '16; Conclusions. *Metal Work* 86:584 N 10 '16

Origin of Scotch iron. *Iron Tr R* 59:634 S 28 '16

Passivity of iron. *Sci Am* 82:368 D 2 '16

Preparation of pure iron and iron-carbon alloys. J. R. Cain, E. Schramm and H. E. Cleaves. *il diags J Ind & Eng Chem* 8:217-24 Mr '16

Rapid method for the estimation of copper and iron. G. Edgar. *Am Chem Soc J* 38:384-7 Ap '16

Relative corrodibilities of iron and steel. J. N. Friend. *Engineer* 120:559-60 D 10 '15

Rusting of iron and some methods for its protection. *Sci Am* 82:6 J1 1 '16

Rusting of iron and steel; abstract. J. Scott. *il Am Soc M E J* 38:184-5 F '16

Thermo-electric method of studying allotropic changes. C. Benedicks. *Engineer* 122:22-3 J1 7 '16; Same. *Met & Chem Eng* 15:337-40 S 15 '16; Same. *Sci Am* 82:362-3 D 2 '16

Transformations of pure iron; general discussion at the annual meeting of Faraday society. *Met & Chem Eng* 13:962-4 D 15 '15; *Sci Am* 81:6-7 Ja 1 '16

See also Annealing; Cast iron; Corrosion and anti-corrosives; Foundry practice; Galvanizing; Iron alloys; Iron founding; Iron industry and trade; Iron metallurgy; Iron mines and mining; Iron ores; Ironwork; Metallography; Pig iron; Plates, Iron and steel; Slag; Steel; Tubes; Wrought iron

Analysis

Analyzed irons and steels—methods of analysis. *U S Bur Stand Circ* 14:1-17 '16

Determination of carbon in steel and irons by direct combustion in oxygen at high temperatures. J. R. Cain and H. E. Cleaves. *diags U S Bur Stand Tech Pa* 69:1-10 '16; Same. *J Ind & Eng Chem* 8:321-4 Ap '16

See also Steel—Analysis

Testing

Effect of oxygen on pure iron. W. Austin. *il Iron Tr R* 58:117-8 J1 27 '16

Influence of speed on endurance tests. W. C. Popplewell. *Engineer* 122:339-40 O 20 '16

Vacuum-fused iron with special reference to effect of silicon. T. D. Yensen. *il Am Inst Min E Bul* 110:483-512 F '16; Abstract. *Met & Chem Eng* 14:280 Mr 1 '16; Summary. *Iron Age* 97:437 F 17 '16; Summary. *Eng M* 51:119 Ap '16; Discussion. *Am Inst Min E Bul* 113:935-7 My '16

See also Cast iron—Testing

Iron age, The

Sixtieth anniversary. *Iron Age* 97:108-9 Ja 6 '16

Iron alloys

Acid resisting alloys. W. C. Carnell. *Iron Age* 98:182-3 J1 27 '16

Design of acid-resisting iron apparatus. N. Swindin. *diags Met & Chem Eng* 15:647-9 D 1 '16

Iron-boron and iron-carbon alloys; with equilibrium diagram. N. Tschishewsky and A. Herdt. *il Iron Age* 98:396-7 Ag 24 '16

Magnetic and other properties of iron-silicon alloys, melted in vacuo. T. D. Yensen. *il diags Il U Eng Exp Sta Bul* 83:1-67 '15

Magnetic properties of cobalt and iron-cobalt alloys; abstract. H. T. Kalmus and K. B. Blake. *Elec W* 68:966 N 11 '16

Magnetic properties of some iron alloys melted in vacuo. T. D. Yensen. *il diag Am Inst E E Pro* 34:2455-95 O '15; Discussion. 35:638-66 My '16

Metals and alloys in the steel industry; review of conditions in 1915. D. Browne. *Iron Age* 97:23+ Ja 6 '16

Rustless ferro-alloys. L. Aitchison. *il Engineer* 121:329-30, 351-2 Ap 21-28 '16

See also Ferromanganese

Iron and steel electrical engineers, Association of. See Association of iron and steel electrical engineers**Iron and steel institute**

Autumn meeting, London, Sept. 21-22. *Engineer* 122:278-80, 299 S 29-O 6 '16; *Iron Tr R* 59:787-9 O 19 '16

Proposed reorganization. R. Hadfield. *Iron Age* 98:1231-2 N 30 '16

2d annual meeting, May 4-5. *Iron Tr R* 58:1170 My 25 '16

Iron and steel institute—Continued

Spring meeting. Engineer 121:373, 396-8 My 5-12 '16

Iron bacteria. See Water—Bacteriology**Iron-carbon alloys**

Preparation of pure iron and iron-carbon alloys. J. R. Cain, E. Schramm and H. E. Cleaves. *il diags J Ind & Eng Chem* 8:217-24 Mr '16

Iron founding

Better gray-iron castings. H. M. Ramp. *Iron Age* 96:1468-9 D 23 '15; Same. *Foundry* 44:88-90 Mr '16

Casting iron segments for New York tunnels. E. C. Kreutzberg. *il Foundry* 44:127-32 Ap '16; Same. *Iron Tr R* 58:861-6 Ap 20 '16

Centrifugal machine for casting pipe. *il diag Iron Age* 98:506-9 S 7 '16

Coal for malleable work. F. Van O'Linda. *Foundry* 44:118-19 Mr '16

Contraction of malleable castings. *Foundry* 44:18 Ja '16

Control of chill in cast iron, considering the elements effective in the manufacture of malleable castings and chilled car wheels. G. M. Thrasher. *il Am Inst Min E Bul* 106:2129-38 O '15; Same. *Foundry* 43:491-3+ D '15; Same. *Iron Tr R* 57:1171-3+ D 16 '15;

Same cond. *Iron Age* 97:550-2 Mr 2 '16; *Excerpt (Natural chill of cast iron). Met & Chem Eng* 13:39-40 Ja '15; *Discussion. Am Inst Min E Bul* 113:927-8 My '16

Dimensions of hard iron and malleable castings. W. Hathaway. *Foundry* 44:134a Ap '16

Distortion of iron casting. W. J. May. *Sci Am S* 81:115 F 19 '16

Evolution of the malleable iron process. J. P. Pero and J. C. Nulsen. *Foundry* 44:133-5 Ap '16

Figuring cupola charges. W. A. Ballou. *Foundry* 44:117-18 Mr '16

Making car wheels at the Lenoir car works. G. S. Evans. *Foundry* 43:351-3, 428-31, 435-9; 44:19-23 S-N '15, Ja '16

Melting gray iron in the Baby Bunting cupola. F. West. *il Foundry* 44:137-8 Ap '16

Melting losses in the cupola. *Iron Tr R* 58:763 Ap 6 '16

Melting steel and gray iron in a cupola. D. McLain. *Iron Age* 97:781-2 Mr 30 '16

Mixture for a 22-ton slag ladle. G. S. Evans. *Foundry* 44:455 N '16

One-piece printing press frame. D. O. Barrett. *il Foundry* 44:60 F '16

Pouring temperatures and strength of castings. E. L. Rhead. *Iron Age* 97:782-3 Mr 30 '16

Powdered coal as a fuel in malleable shops. J. Harrington. *Foundry* 44:388-9, 442-3 S-O '16

Primitive iron smelting in the Philippine Islands. J. F. Springer. *il Iron Tr R* 58:77-80 Ja 6 '16

Semi-steel; abstract. J. E. Hurst. *Am Soc M E J* 38:263-4 Mr '16

Semi-steel defended and attacked. Y. A. Dyer and R. Moldenke. *Iron Age* 97:542-4 Mr 2 '16; *Abstract. Am Soc M E J* 38:347-8 Ap '16

Standardizing air furnace practice. A. L. Pollard. *Foundry* 43:412-13 O '15; Same. *Iron Tr R* 58:144+ Ja 13 '16

Use of metal briquettes in cupolas. F. Wüst, F. Bocking and J. C. Stork. *Iron Age* 97:842 Ap 6 '16

Variable factors in malleable iron production. L. E. Gilmore. *Foundry* 44:181-3 My '16; *Abstract. Am Soc M E J* 38:500-1 Je '16

Variations in malleable shrinkage. *Foundry* 44:48 F '16

White core returns. W. J. Keep. *il Foundry* 44:59-60 F '16

See also Boiler plates; Cast iron; Cupola furnaces; Foundry practice; Molding machines; Pig iron; Semi-steel

Iron industry and trade

Analysis of the ore situation. R. V. Sawhill. *Iron Tr R* 59:927 N 9 '16

Average monthly prices of iron and steel products, 1904-1915. *Iron Tr R* 58:107 Ja 6 '16

Blast-furnace capacity. *Eng & Min J* 100:937 D 4 '15

Canadian metal imports from United States. W. L. Edmonds. *Iron Age* 98:359-61 Ag 17 '16

Charts showing fluctuations in iron and steel prices for twenty-one years. *Iron Tr R* 58:24a Ja 6 '16

Charts showing prices of foundry coke, production of pig iron, unfilled tonnage United States steel corporation, net earnings United States steel corporation and lake shipments of iron ore, 1900-1915. *Iron Tr R* 58:56a Ja 6 '16

Chicago iron trade in 1915. O. J. Abell. *Iron Age* 97:3-5 Ja 6 '16

Cincinnati iron trade in 1915. C. L. Smith. *Iron Age* 97:9-10 Ja 6 '16

English markets in a year of war. J. Horton. *Iron Tr R* 58:104-6+ Ja 6 '16

Far reaching effects of decision by Interstate commerce commission in iron ore case. map *Iron Tr R* 59:524-7 S 14 '16

February export values make new record. *Iron Age* 97:948-9 Ap 20 '16

Foundry and malleable iron output compared. *Foundry* 44:132 Ap '16

From paralysis to prosperity—a financial review. *Iron Tr R* 59:238-9 Ag 3 '16

Great industries in Belgium before and during the war. H. Hubert. *Engineer* 121:55-7 Ja 21 '16

Greatest year in iron and steel exports. *Iron Age* 98:304-5 Ag 10 '16

Handling iron and steel export shipments. F. A. Kelly. *Iron Age* 98:1112-13 N 16 '16

High prices bring profits in East. C. J. Stark. *Iron Tr R* 58:19-23 Ja 6 '16

Industrial progress of sixty years; the lifetime of the iron age. *il Iron Age* 97:31-8 Ja 6 '16

Iron and steel exports in May, 1915 and 1916, and for eleven-month periods. *Iron Age* 98:93-4 J1 13 '16

Iron and steel in Canada. *Eng & Min J* 102:382-3 Ag 26 '16

Iron and steel market. *Met & Chem Eng* 15:559-60 N 15 '16

Iron and steel prices for eighteen years; with supplement. *Iron Age* 97:14-15 Ja 6 '16

Iron and steel problems in Spain. *Iron Tr R* 59:830 O 26 '16

Iron and steel statistics. F. Hobart. *Eng & Min J* 101:69-71 Ja 8 '16

Iron-ore output 55,000,000 tons. *Iron Age* 97:1389 Je 8 '16

Iron ore prices advance; history of prices for the past 28 years. *Iron Tr R* 59:1108-10 N 30 '16

Iron ore prices for 27 years. *Iron Tr R* 57:1188-90 D 16 '15

Iron-ore production in 1915. *Eng & Min J* 101:1060 Je 17 '16

Iron range developments in 1915. H. C. Estep. *il map Iron Tr R* 58:81-92 Ja 6 '16

Iron, steel and machinery exports in 1915. *Iron Age* 97:428-9 F 17 '16

January iron, steel and machinery exports. *Iron Age* 97:609-10 Mr 9 '16

Lake ore situation. *Eng & Min J* 101:26 Ja 1 '16

Lake Superior iron-ore shipments. *Eng & Min J* 101:593 Ap 1 '16

Minette iron ores of the Lorraine district. H. H. Campbell. *Iron Age* 96:168-9 J1 15 '15; Same cond. *Eng M* 50:616-17 Ja '16

1915 Lake Superior ore shipments; official tabulation for 1915 and 1914; graphic record for the past 26 years. R. V. Sawhill. *Iron Tr R* 58:602-5 Mr 16 '16

Pacific coast iron situation; the iron ores of California and possibilities of smelting. C. C. Jones. map *Am Inst Min E Bul* 105:1887-98 S '15; Same cond. *Iron Tr R* 57:1273-6+ D 30 '15; *Discussion. Am Inst Min E Bul* 108:2496-501 D '15

Philadelphia iron trade in 1915. C. Lundberg. *Iron Age* 97:7-9 Ja 6 '16

Pig-iron outlook. *Metal Work* 85:412 Mr 24 '16

Pig iron production in 1915. *Eng & Min J* 101:513 Mr 18 '16

Pig-iron production in 1915. *Eng Rec* 73:450 Ap 1 '16

Pittsburgh iron and steel markets. B. E. V. Luty. *Eng & Min J* 101:71-2 Ja 8 '16

Pittsburgh iron trade in 1915. R. A. Walker. *Iron Age* 97:6-7 Ja 6 '16

Pittsburgh makes its greatest record. C. F. Williams. *Iron Tr R* 58:28-31+ Ja 6 '16

Iron industry and trade—Continued

- Prices present and past; quotation on leading products January 5, average for December, 1915, average for October, 1915, and average for January, 1915. Iron Tr R 58:40 Ja 6 '16
- Production of miscellaneous iron and steel products in the United States in 1915; tabulation. Iron Tr R 59:286 Ag 10 '16
- Renaissance of eastern ore market. C. J. Stark. Iron Tr R 58:585-9 Mr 16 '16
- Review of Cincinnati iron market. S. G. Backman. Iron Tr R 58:38-9 Ja 6 '16
- Rise of the British iron industry. H. H. Campbell. Iron Age 97:996-8 Ap 27 '16
- Trade enjoys a most vigorous recovery; general review of the course of business in 1915. Iron Age 97:1-3 Ja 6 '16
- Warrants in an eventful period. C. J. Stark. Iron Tr R 59:167-71 Jl 27 '16
- West felt improvement slowly. G. H. Manlove. Iron Tr R 58:32-4 Ja 6 '16
- What may the iron and steel trades expect when peace is declared in Europe?; views of manufacturers. Iron Age 97:28-30, 91-3 Ja 6 '16
- See also* Hardware; Iron mines and mining; Iron ores; Pig iron; Rolling mills; Scrap metal; Steel industry; Stove trade; United States steel corporation

- Iron losses in direct-current machines. B. G. Lamme. diags Am Inst E E Pro 35:345-70 Mr '16; Discussion. 35:1100-12 Jl '16

Iron metallurgy

- Blast furnace irregularities and their treatment. J. E. Johnson, jr. Met & Chem Eng 15:69-77, 127-30 Jl 15-Ag 1 '16
- Blast furnace products. J. E. Johnson, jr. Met & Chem Eng 15:324-8 S 15 '16
- Burdening the blast furnace. J. E. Johnson, jr. Met & Chem Eng 14:443-50 Ap 15 '16
- Calculation of the burden of the blast furnace. J. E. Johnson, jr. Met & Chem Eng 14:520-4 My 1 '16
- Chemical and physical properties of foundry irons. J. E. Johnson, jr. Iron Tr R 58:530-7, 588-97, 642-6, 683-5 N 1-D 15 '16
- Coke as a reducing agent in the electric smelting furnace. R. C. Gosrow. Met & Chem Eng 14:691-4 Je 15 '16
- Commercial considerations concerning the blast furnace. J. E. Johnson, jr. Met & Chem Eng 15:235-44 S 1 '16
- Distribution of the charge column and of the ascending gas column. J. E. Johnson, jr. diags Met & Chem Eng 14:642-50 Je 1 '16
- Electrolytic iron from pyrite; patented by A. Estelle. Met & Chem Eng 14:608-9 My 15 '16
- Electrometallurgy of iron and steel and Pacific coast waterpowers. J. O. Boving. Met & Chem Eng 15:224 S 1 '16
- Electro-thermic smelting of iron ores in Scandinavia. diags Engineer 122:5-6 Jl 7 '16
- Evolution of the malleable process. J. P. Pero and J. C. Nulsen. Iron Age 96:1168-70 N 18 '15; Same. Sci Am S 82:54-5 Jl 22 '16
- Function of slags in ore reduction. J. E. Fletcher. Iron Tr R 59:947-9 N 9 '16
- How iron is smelted in darkest Africa. diags Iron Tr R 57:1136 D 9 '15
- Iron and steel works problems of 1915. J. E. Johnson, jr. Iron Age 97:24-7 Ja 6 '16
- Mechanical principles of the blast furnace. J. E. Johnson, jr. diags Met & Chem Eng 14:38-45, 77-87 Ja 1-15 '16
- Operation of the blast furnace. J. E. Johnson, jr. Met & Chem Eng 14:210-15, 266-8, 363-72, 591-600 F 15-Mr 1, Ap 1, My 15 '16
- Rate of driving the blast furnace. J. E. Johnson, jr. Met & Chem Eng 15:21-6 Jl 1 '16
- Recent progress in electrolytic iron. O. W. Storey. Met & Chem Eng 14:534-6 My 1 '16; Same. Iron Tr R 58:1043-5 My 11 '16; Same, with bibliography. Sci Am S 82:198-9 S 23 '16
- Removal of metalloids in the pig-washing process. E. L. Ford. Am Inst Min E Bul 108:2394-D '15; Same cond. Iron Tr R 59:277-8 Ag 10 '16

- Washed metal. H. D. Hibbard. il plan Am Inst Min E Bul 108:2387-94 D '15; Same. Iron Age 97:481-5 F 24 '16; Same. Iron Tr R 59:275-7 Ag 10 '16

See also Blast furnaces; Case hardening; Cast iron; Corrosion and anti-corrosives; Foundry practice; Iron alloys; Iron mines and mining; Iron works; Pig iron; Slag; Steel metallurgy

Iron mines and mining

See also Iron ores

Alabama

- Why Alabama irons are valuable. Y. A. Dyer. Iron Tr R 59:785-6 O 19 '16

Chile

- Bethlehem Chile iron mines electrification. W. S. Bourlier. il diags Gen Elec R 19:995-1005 N '16

China

- Hanyang iron and steel works. plan map Engineer 121:51 Ja 21 '16

Cuba

- Mining in Oriente province, Cuba. J. T. Singewald, jr. and B. L. Miller. il map Eng & Min J 101:587-92 Ap 1 '16
- Underground mining in Cuba. L. B. Reifsnieder. diags Eng & Min J 102:509-11 S 16 '16

Lake Superior region

- Iron range developments in 1915. H. C. Estep. il map Iron Tr R 58:81-92 Ja 6 '16

Michigan

- Iron mining on the Menominee. H. C. Estep. il map Iron Tr R 58:179-85 Ja 20 '16

Minnesota

- Armour mines on Cuyuna range. Iron Tr R 57:1223-4 D 23 '15
- Dean-Itasca and Pennington mines. il Iron Tr R 57:1140-1 D 9 '15
- Development of the Cuyuna range. C. Zapffe. Iron Tr R 57:1131-3+ D 9 '15
- Developments in Virginia district. Iron Tr R 58:645-6 Mr 23 '16
- Hydraulic stripping on the Cuyuna. E. P. McCarty. il diags Iron Tr R 58:135-9 Ja 13 '16
- New method of stripping on the Mesabi. Eng & Min J 101:261-2 F 5 '16
- Predicted troubles not realized at the Adams mine on the Cuyuna. il Iron Tr R 58:1284 Je 8 '16
- Stripping Mesaba deposits. il Iron Age 97:145 Ja 13 '16
- Stripping the Hillcrest iron mine with a sand pump. il map Eng & Min J 101:211-15 Ja 29 '16
- Welfare work on Cuyuna range. Iron Tr R 58:450 F 24 '16

New York (state)

- Iron ores of the Adirondacks. F. S. Witherbee. il Iron Tr R 59:891-4 N 2 '16; Same, with discussion. Iron Age 98:1039-42 N 2 '16
- Sterling iron mines. J. W. Ritchings, jr. il Eng & Min J 102:474-5 S 9 '16

Newfoundland

- Submarine mining of Wabana iron ore. C. L. Cantley. Iron Age 96:1285 D 2 '15

Spain

- Iron mines of the Sierra Menera district of Spain. V. De Ysassi. diags plan map Am Inst Min E Bul 110:237-42 F '16

Iron ore rates. *See* Ore transportation

Iron ores

- Analysis of slate and dike. E. E. White. Eng & Min J 101:433-4 Mr 4 '16
- Chrome-nickel iron and steel products. L. Waldo. Iron Age 98:839 O 12 '16
- Conservation of iron ore. C. K. Leith. Am Inst Min E Bul 110:227-31 F '16; Same abr. Iron Tr R 59:1045-6 N 23 '16
- Genesis and relations of the Daiquiri and Firmeza iron-ore deposits, Cuba. J. T. Singewald, jr., and B. L. Miller. Am Inst Min E Bul 111:671-8 Mr '16

Iron ores—Continued

- Geology of the iron-ore deposits of the Firmeza district, Oriente Province, Cuba. M. Roessler. bibliog il map Am Inst Min E Bul 113:1789-1839 O '16
- Iron deposits of Daiquiri, Cuba. W. Lindgren and C. P. Ross. bibliog il Am Inst Min E Bul 106:2171-90 O '15; Discussion. 113:886-93 My '16
- Iron ore in Lapland. Iron Tr R 58:545 Mr 9 '16
- Iron ores of the Adirondacks. F. S. Witherbee. il Iron Tr R 59:891-4 N 2 '16; Same, with discussion. Iron Age 98:1039-42 N 2 '16
- Iron ores of the Philippine Islands. W. E. Pratt. maps Am Inst Min E Bul 110:247-62 F '16; Same cond. Iron Tr R 59:631-4 S 28 '16
- Minette iron ores of the Lorraine district. H. H. Campbell. Iron Age 96:163-9 JI 15 '15; Same cond. Eng M 50:616-17 Ja '16
- Nashwaik iron-washing plants. L. A. Rossman. il diag Eng & Min J 102:491-3 S 16 '16
- Pacific coast iron situation; the iron ores of California and possibilities of smelting. C. C. Jones. map Am Inst Min E Bul 105:1887-98 S '15; Same cond. Iron Tr R 57:1273-6+ D 30 '15
- Raw materials of the blast furnace. J. E. Johnson, jr. Met & Chem Eng 14:318-23 Mr 15 '16
- Recent geologic developments on the Mesabi iron range, Minnesota. J. F. Wolff. il maps. Am Inst Min E Bul 118:1763-87 O '16
- Relation of the titaniferous magnetite ores of Glamorgan township, Haliburton county, Ontario, to the associated scapolitic gabbros. W. G. Foye. il map Econ Geol 11:662-80 O '16
- Steel industry in the war zone. H. H. Campbell. map Iron Age 98:248-50 Ag 3 '16
- See also Iron industry; Iron metallurgy; Iron mines and mining; Pyrite

Iron oxides

- Oxides of iron; solid solution in the system $Fe_2O_3-Fe_3O_4$. R. B. Sosman and J. C. Hostetter. diags Am Chem Soc J 38:807-33 Ap '16
- Purifier oxide and lime-sulphur as a by-product. E. S. Jones. il Gas Age 38:410-15 O 16 '16; Same cond. (Area theory for calculating amount of oxide to purify given quantity of gas). Am Gas Light J 105:245-7 O 16 '16
- See also Ferric oxide; Gas manufacture and works—By-products
- Iron rust. See Corrosion and anti-corrosives
- Iron, steel and heavy hardware association. American. See American iron, steel and heavy hardware association
- Iron work. See Ironwork
- Iron works
- Hanyang iron and steel works. il diags map Plan Engineer 121:51-2, 78-80 Ja 21-28 '16
- New iron and steel works construction. Iron Age 97:97-106 Ja 6 '16
- See also Forge shops; Foundries; Steel works

Safety devices and measures

- Safety rules for iron and steel plants. Iron Age 97:546-8 Mr 2 '16

Irons, Electric. See Electric irons**Ironwork**

- Famous ironwork of Spain. M. Wilcox. Arch Rec 39:491-3 My '16
- See also Blacksmithing; Forging; Iron industry and trade; Tin plate; Welding; Wrought iron

Ironwork, Architectural

See also Sheet metal work, Architectural

Iroquois Falls, Ontario

- Planning the industrial town of Iroquois Falls. A. P. Melton. plan Eng & Contr 45:524-6 Je 7 '16

Irrigation

- Accounting and business procedure as applied to the construction of large irrigation projects. C. E. Bee. Eng & Contr 45:269-74 Mr 22 '16

Ancient Mesopotamia and the irrigation system that made it a fertile territory. A. Selwyn-Brown. map Sci Am S 81:309 My 13 '16

City water for irrigation and its possibilities. Eng & Contr 46:121 Ag 9 '16

City water supply for irrigation. Eng & Contr 46:226-7 S 13 '16

Classification of expenditures for irrigation work. F. H. Newell. Eng & Contr 45:201-4 Mr 1 '16

Duty of the irrigation engineer. L. M. Rice. Eng & Contr 45:253 Mr 15 '16

Methods and cost of making a snow survey for irrigation system. F. T. Cummings. il map Eng & Contr 46:189-92 Ag 30 '16

Pumping water for irrigation. L. Schmeer. Eng & Contr 45:489-91; 46:34-6, 62-6 My 31, JI 12-19 '16

Run-off problem in draining irrigated lands. C. G. Elliott. Eng & Contr 44:481-2 D 22 '15

Standard irrigation weir. V. M. Cone. diags Eng N 76:222-3 Ag 3 '16

Tile-drainage systems for irrigated land. il Eng N 75:88-9 Ja 13 '16

Turning out crops on schedule time by overhead irrigation. il Sci Am 114:547 My 27 '16

Venturi meter developed for accurate measurement of irrigation water. A. A. Wood. il diag Eng Rec 73:411-13 Mr 25 '16

See also Dams; Drainage; Irrigation canals; Pumping stations; Reservoirs; Silt

Cost

Irrigation increases land value from \$20 to \$400 per acre. il Elec R & W Elec'n 68:108-9 Ja 15 '16

Arizona

Pumping plant for small irrigation projects near Tucson, Ariz. il Eng N 75:1187-8 Je 22 '16; Same. Power 44:132 JI 25 '16

California

Building Los Angeles aqueduct irrigation system. B. A. Heinly. Eng N 75:926-7 My 18 '16

Construction methods and costs, Sacramento valley irrigation project. P. A. Welty. il diags maps Eng & Contr 43:554-8; 44:420-4, 493-7 Je 23, D 1, 29 '15

Engineering and economic features of the irrigation system of the Los Angeles aqueduct—construction just beginning. B. A. Heinly. il map Eng & Contr 45:82-5 Ja 26 '16

Irrigation laws developed in California. Eng Rec 73:510 Ap 15 '16

Oldest irrigation conduit and dam in the United States. il diag Eng N 75:297-8 F 17 '16

Solving the Imperial Valley irrigation problems. Eng N 75:170-1 Ja 27 '16

Thirty-seven wells for irrigation project. Eng Rec 74:132 JI 29 '16

What Imperial valley canals need. map Eng Rec 74:603-4 N 11 '16

Canada

Brooks aqueduct of Canada. il Sci Am 114:385+ Ap 8 '16

Colorado

Large roller-crest dam, Grand valley project. F. Teichman. il diags Eng N 76:1-4 JI 6 '16

Idaho

Experiments on the economical use of irrigation water in Idaho. D. H. Bark. il diags U S Agric Bul 339:1-57 '16; Conclusions. Eng N 76:19-20 JI 6 '16

India

Punjab triple canal system. J. Benton. Engineer 120:584 D 17 '15

Montana

Power and irrigation project for the Big Horn Canyon. il diags map Ry R 59:436-48 S 30 '16

Water for Prickly Pear irrigation project raised 160 feet with financial success. diags plan map Eng Rec 72:691-3 D 4 '15

New Mexico

See Elephant Butte dam

Irrigation — Continued

New South Wales

New South Wales irrigators substantially assisted. Eng Rec 74:112 J1 22 '16

Oregon

Goose Lake valley irrigation system. K. A. Heron. il diag map Eng N 76:503-1 S 14 '16
Goose Lake valley irrigation system, Oregon. G. W. Rice. Eng N 76:809 O 26 '16
Irrigation projects in Oregon. Eng & Contr 45:496-7 My 31 '16
State engineer's river survey guides water adjudicators. P. A. Cupper. Eng N 76:5-6 J1 6 '16

Philippine Islands

Light home-made waterwheel for irrigation. diags Eng N 76:409-10 Ag 31 '16

Russia

Stoplog barrier regulates Romanov canal. L: Ross. diag Eng Rec 74:114-15 J1 22 '16

South Africa

Irrigation in South Africa. Engineer 122:267 S 22 '16

Texas

Electricity supplants mesquite-fired boiler as power source for pumps. il diag map Eng Rec 73:570-1 Ap 29 '16

United States

Irrigation in 1915. Eng Rec 73:7 Ja 1 '16
Rural credits necessary if irrigation enterprises are to succeed. E: Gillette. Eng Rec 72:789-90 D 25 '15
Slow rate of utilization of irrigation works. R. P. Teele. Eng N 76:202-3 Ag 3 '16

See also Reclamation service (United States)

Washington

Every possible precaution observed to make watertight Keechel reservoir, Washington. C. E. Crownover. diags Eng Rec 74:474-6 O 14 '16

Municipal irrigation system of Prosser, Washington. il Munic Eng 49:208-9 D 15

Puddling and rolling to assure impervious foundation for Keechel reservoir. C. E. Crownover. il Eng Rec 74:534-6 O 28 '16

\$600,000 Washington irrigation project, financed by landowners, completed in a year. J. C. Stevens. il diags map Eng Rec 74: 640-3 N 25 '16

Wyoming

Some settlers, not all, need help on Shoshone project. Eng Rec 74:463-4 O 14 '15

Irrigation, Municipal

Municipal irrigation system of Prosser, Washington. il Munic Eng 49:208-9 D 15

Irrigation canals

Canal excavation with electric drag-line scrapers. il Elec W 67:255-6 Ja 29 '16

Cerro Prieta irrigation canal. C. R. Rockwood. Eng N 76:233 Ag 3 '16

Comparison of wood and concrete for use in irrigation structures. S. T. Harding. Eng & Contr 45:340-2 Ap 12 '16

Construction methods and costs, Sacramento valley irrigation project. P. A. Welty. il diags Eng & Contr 44:420-4, 493-7 D 1, 29 '15

Cost of structures of the second unit of the Dodson north canal, Milk river irrigation project, Malta, Mont. A. E. Bechtel. il Eng & Contr 46:126-9 Ag 9 '16

Curves for irrigation-ditch velocity and discharge. J. Hinds. Eng N 76:369-70 Ag 24 '16

Curves for irrigation-ditch velocity and discharge. L. R. Douglass. Eng N 76:172-3 J1 13 '16

Design and structural details of concrete lining for irrigation canals. S: Fortier. diags Concrete 8:174-8 Ap '16

Electrically driven dragline scrapers dig 45-mile irrigation canal at Sun river project. il Eng Rec 73:147-8 Ja 29 '16

Irrigation canal slope trimmer. diag Eng & Contr 45:415 My 31 '16

Irrigation headworks repair and dam failure. W. G. Bligh. diags Eng N 75:1070-2 Je 8 '16

Location survey methods for irrigation canals. Eng N 75:997-8 My 25 '16

Machine for placing concrete lining in canals. E. I. Davis. il Eng N 75:264-7 F 10 '16

Methods and costs of concrete lining irrigation laterals, Orland project, U. S. reclamation service. A. N. Burch. Eng & Contr 45:352 Ap 12 '16

Silt problem in Imperial Valley system. J. C. Allison. Eng Rec 73:182 F 5 '16

Small irrigation canals lined with concrete to prevent seepage water loss. C. E. Edwards. il Eng Rec 73:508-10, 539-41 Ap 15-22 '16

Stoplog barrier regulates Romanov canal. L: Ross. diag Eng Rec 74:114-15 J1 22 '16

Time saved in ditch design by depth-flow diagrams. L: M. Hammond. Eng N 76:802 O 26 '16

Two relief gates considered for handling cross-canal flood waters. J. Jenson. diags Eng Rec 73:22-3 Ja 1 '16

Water for Prickly Pear irrigation project raised 160 feet with financial success. diags plan map Eng Rec 72:691-3 D 4 '15

See also Flumes

Isabey, Louis Gabriel Eugène, 1803-1886

Architectural draughtsmen; Eugene Isabey and his lithographs. H: Winslow. il Am Inst Arch J 4:139-50 Ap '16

Isobutyl bromide

Rearrangement of iso into tertiary butyl bromide. A. Michael, E. Scharf and K. Voigt. Am Chem Soc J 38:653-75 Mr '16

Isolated plants. See Electric plants—Central stations vs. isolated plants

Isomerism

Action of sodium methylate upon the products of nitration of ortho-, para- and meta-chloro-toluenes. H. S. Fry. Am Chem Soc J 38:1327-33 J1 '16

Rearrangement of iso into tertiary butyl bromide. A. Michael, E. Scharf and K. Voigt. Am Chem Soc J 38:653-75 Mr '16

Study of the stereo-isomerism of a fermentation lactic acid. S. J. Thomas. J Ind & Eng Chem 8:821-3 S '16

See also Triarylcannabinols

Isopulegol phosphonic acid

Isopulegol phosphonic acid, or citronellal phosphoric acid. F. D. Dodge. Am Chem Soc J 37:2756-61 D '15

Isothiocyanates

Researches on thiocyanates and isothiocyanates; ethyl isothiocyanacetate. T. B. Johnson and E. H. Hemingway. Am Chem Soc J 38:1550-7 Ag '16

Isotopy

Isotopy. H. Schmidt. Sci Am S 82:55 J1 22 '16

Italic. See Type

Italy

See also Electric industries—Italy

Commerce

Italy, a field for American mine supplies.

C: W. Wright. Eng & Min J 102:233-4 J1 29 '16

Ivory

One of the curious trades of New York. il Sci Am S 82:264 O 21 '16

J

Jacks

Jacking up Riverside Drive viaduct; buckling columns give trouble. il Eng N 76:871 N 9 '16

Locomotive raised from harbor by jacks mounted on scows. V: W. Killick. il Eng Rec 74:452 O 7 '16

Power operation of ratchet jacks. A. Raymond. il Ry Mech Eng 90:91-2 F '16

Screw jack for removing Edison cell connectors. E. G. Quarnstrom. diag Elec R & W Elec'n 69:932 N 25 '16

Shortcomings of the conventional lifting jack. diag Automobile 35:139 J1 27 '16

Simplex jack. il Coal Age 10:641 O 14 '16; Same. Eng & Min J 102:793 O 28 '16

Jacks—Continued

- Theory and tests presented for design of sand boxes to lower arch centers. F. P. McKibben. *il diag Eng Rec* 74:530-2 O 28 '16; Correction. 74:630 N 18 '16
- Twin jacks for removing wood poles. S. L. Foster. *il Elec Ry J* 47:369 F 19 '16
- Unwheeling Mallet locomotives. *il Ry Mech Eng* 90:48 Ja '16
- Wheel clamp and jack block. *diags Ry Mech Eng* 90:22 Ja '16
- Whiting hoist for lifting Mallet locomotives. *il Ry R* 59:190-1 Ag 5 '16

Jacksonville, Florida**Wharves**

- Jacksonville municipal docks are open for business. *Eng N* 76:722 O 12 '16

Jacobus, David Schenck, 1862-

- President of the American society of mechanical engineers. W: Kent. *Eng N* 75:219 F 3 '16

Jails. See Prisons**Jamaica bay**

- First unit of Jamaica bay improvement completed. *map Eng Rec* 73:392-3 Mr 18 '16

Japan**Commerce**

- Foreign trade of Japan and United States. *Mach* 22:826-7 My '16
- Japanese cotton goods industry and trade. G: N. West. U S Sp Cons Rep 74:1-12 '15

Economic conditions

- Address at meeting of American iron and steel institute. E. H. Gary. *Iron Age* 98:993-6 N 2 '16; Same. *Iron Tr R* 59:905-8 N 2 '16

Industries and resources

- Ashio's copper-smelting works at Honzan, Japan. *il diag Eng & Min J* 100:998-1001 D 18 '15
- Central-stations of Japan. *Elec W* 68:169 J1 22 '16
- Cotton industry of Japan. C: R. Dodge. *Textile World* 51:547 Ja 15 '16
- Industrial development of Japan. C: R. Dodge. *Sci Am S* 81:262-3 Ap 22 '16
- Production and exports of Japanese tungsten. *Sci Am* 115:321 O 7 '16

See also Mines and mineral resources—Japan

Japanning

- Automobile cushion springs; methods of japanning and means of conveying product. E. F. Lake. *il diag plan Mach* 22:1071-6 Ag '16
- Gas vs. electricity for japanning and enameling ovens. C. L. Gehrich. *il Am Gas Light J* 103:401-3 D 27 '15
- Modern acid-dipping, electroplating and japanning plant. H. N. Trumbull. *il Gen Elec R* 18:1121-6 D '15; Abstract. *Iron Age* 97:661 Mr 16 '16
- Operation shows that as high a per cent of perfect work in japanning is obtained from a gas oven as an electric oven. H. T. Wood. *Am Gas Light J* 105:250-1 O 16 '16

Jays

- Crows and jays. *il Am For* 22:610-11 O '16

Jefferson highway

- Route of the Jefferson highway. *map Munic J* 40:486 Ap 6 '16

Jelly

- Jelly investigations. W. V. Cruess and J. B. McNair. *J Ind & Eng Chem* 8:417-21 My '16

See also Bar-le-Duc

Jetties

- Brush-and-stone jetties prove effective at Ventnor City and Longport, New Jersey. W. I. Risley. *diags map Eng Rec* 73:829-31; 74:117 Je 24, J1 22 '16
- Constructing a thousand-ton concrete block for a jetty head. G: F. Whittemore. *diag plan Eng & Contr* 45:138-9 F 9 '16
- Low jetties for shore protection built by Jersey Central. *diags Eng Rec* 74:18 J1 1 '16

See also Breakwaters

Jewelry

See also Gems; Goldsmithing

Manufacture

- Fluxes in the jewelry factory. C. M. Hoke. *il Metal Ind n s* 14:191-3 My '16
- Past and current practice in manufacturing jewelry. O. A. Hillman. *Metal Ind n s* 14:121-2 Mr '16
- Pinch press tool. *il diags Mach* 22:511-12 F '16

Jewelry factories

- Bringing a jewelry factory up to date. C. M. Hoke. *Metal Ind n s* 14:18-19, 72-3, 107-8 Ja-Mr '16
- What did it cost? how the question is answered in one jewelry factory. W. A. Cunningham. *Factory* 17:148-51 Ag '16

Jigs

- Accurate jig that produced inaccurate work. F. J. Badge. *diags Mach* 22:333 D '15
- Drill jig for adjustable yoke end. W. B. Bennett. *diags Mach* 23:160 O '16
- Jig and fixture design. G: M. Meyncke. *diags Mach* 22:513-14 F '16
- Jig and fixture details—clamps and straps. R. F. Pohle. *diags Mach* 22:839-41 Je '16
- Jig for drilling small studs. J: Hoffman. *diags Mach* 22:698 Ap '16
- Jig for tube cutters. E. Barnes. *diags Ry Mech Eng* 90:321 Je '16
- Self-centering jig. *il Mach* 22:798-9 My '16
- Studs and nuts for jig work. R. F. Pohle. *tables Mach* 22:976-7 J1 '16
- Trunnion drill jig with milling attachment. *il Mach* 23:127 O '16

Jigs (mining)

- History of a successful jig. F. B. Davenport. *diags Coal Age* 10:497-8 S 23 '16
- Jigging anthracite coal. E. E. Finn. *diags Coal Age* 9:622-5 Ap 8 '16
- Joplin hand-jig. C. K. Hitchcock. *diags Eng & Min J* 101:479-80 Mr 11 '16
- Steel's jig for gold dredge. *diags Eng & Min J* 101:692 Ap 15 '16

Jitney buses

- Can the jitney be revived? *Elec Ry J* 47:68 Ja 8 '16
- Current tendencies in the railway business. T: Conway, jr. *Elec Ry J* 48:10-12 J1 1 '16
- Economics of the jitney. L. R. Nash. *Elec Ry J* 47:1184-5 Je 24 '16
- Jitney cost figures analyzed at Dallas. *Elec Ry J* 47:1212 Je 24 '16
- Lesson of the jitney. R. H. Smith. *Elec Ry J* 46:1119-20 D 4 '15
- Prospect of the jitney. H. S. Cooper. *Elec Ry J* 47:39-40 Ja 1 '16
- Recent jitney data from Los Angeles. *il Elec Ry J* 48:139 J1 22 '16

Regulation

- Jitney bus situation in California. W. V. Hill. *Elec Ry J* 48:1024 N 11 '16
- Jitney situation on the Pacific coast. *Elec Ry J* 47:497-8 Mr 11 '16
- Jitneys in Rochester to be stopped. *Elec Ry J* 47:957-8 My 20 '16
- Rochester jitneys operate despite Thompson law. *Elec Ry J* 46:1175 D 11 '15
- San Francisco jitney ordinance upheld. *Elec Ry J* 48:419 S 2 '16

Job tickets. See Printing, Practical—Accounting**Job work. See Typesetting—Job work****Jobbers**

- Job shop development. F. T. Bokern. *Metal Work* 85:251 F 18 '16
- Jobber distribution as an ultimate economy. J. W. Wooley. *Elec R & W Elec'n* 68:426-7 Mr 4 '16

Jobbers' association of dress fabric buyers

- Mid-year gathering. New York city, July 18. *Textile World* 51:3279 J1 22 '16

John Fritz medal

- Dr. Elihu Thomson to receive John Fritz medal. *Elec W* 68:1037 N 25 '16

Joint committee on classification of technical literature

- Committee on classification of technical literature assigns subjects. *Eng Rec* 73:496 Ap 8 '16

Joint committee on classification of technical literature—Continued

Means of codifying all contributions on applied science discussed at meeting in New York city, April 1. Elec W 67:806-7 Ap 8 '16

Joints

Bolted and lagscrewed joints in timber. H. D. Dewell. diags Eng N 76:796-7 O 26 '16
Butt and double strap joints for sulphite digesters. il diags Locomotive 31:99-103 O '16
Construction joints in concrete buildings. A. M. Wolf. diags Concrete 9:95-6 S '16
Factors in universal joint design. A. L. Clayden. diags Automobile 34:934-6, 982-4 My 25-Je 1 '16
False riveting die. H. F. McKnight. diag Mach 22:391 Je '16
Lagscrewed joints in timber. H. D. Dewell. il diags Eng N 76:162-4 Jl 27 '16
Letter board splice. diag Ry Mech Eng 90:128 Mr '16
Tests of bolted joints in timber framing. H. D. Dewell. il diags Eng N 76:111-15 Jl 20 '16
See also Boilers—Joints; Pipe joints; Rail joints

Joints, Riveted. See Riveted joints

Jolt ramming machines. See Molding machines

Journalism

See also House organs; Newspapers; Trade papers; War newspapers

Journals (machinery). See Bearings

Jovian order

Annual convention, Indianapolis, Oct. 17-20. Elec R & W Elec'n 69:750-1 O 28 '16; Elec W 68:844-5 O 28 '16

Jupiter

Jupiter—the solar king. G: A. Russ. Sci Am S 81:219 Ap 1 '16

Jute

Indian jute industry. C. C. McLeod. Sci Am S 82:218-19 S 30 '16
Sizing jute warp. Textile World 51:1773 Ap 8 '16

K**Kananaskis Falls, Alberta**

Five schemes considered for power development at Kananaskis Falls. H. S. Johnston. il diags map Eng Rec 73:70-2, 115-17 Ja 15-22 '16

Kansas Chemallurgist

Bleeding Kansas. Met & Chem Eng 15:110-11 Ag 1 '16

Kansas**Sanitary affairs**

State control of Kansas water supplies. C. A. Haskins. Munic J 40:264-6 F 24 '16

Kansas City, Kansas**Railroads**

Terminal railway gets another 200-year franchise. Eng N 76:814-15 O 26 '16

Kansas City, Missouri**Bridges**

New Kansas City terminal viaduct. map Ry Age 61:995-6 D 1 '16

Parks

Park system of Kansas City, Mo. G: B. Ford. il map Arch Rec 40:498-504 D '16

Rapid transit

Methods of handling track work in Kansas City, with cost tables. il diags Elec Ry J 48:430-6 S 9 '16

Streets

Construction methods on the Paseo, Kansas City. il Munic Eng 51:20-1 Jl '16

Kansas City railroad collection bureau

Organization for the collection of transportation charges. H. W. Meyers. Ry Age 61:811-13 N 3 '16

Kansas City railways

Kansas City railway gains public favor. Elec Ry J 48:666-70 S 30 '16

Kansas City Southern railroad

Report for year ending June 30, 1916. map Ry Age 61:832-3 N 10 '16

Kapok

Carding kapok. diags Textile World 51:2249 My 6 '16

Kapok—a new textile fibre; its manufacture and industrial applications. J. Boyer. il diags Sci Am S 81:120-1 F 19 '16

Kelp

Can an American potash industry be established? E. D. Koeppling. Met & Chem Eng 15:385 O 1 '16

Decomposition of the organic matter of kelp in the soil. A. W. Christie. J Ind & Eng Chem 8:425-7 My '16

Materials in a ton of kelp. G. B. Rigg. J Ind & Eng Chem 8:568 Je '16

Obtaining potash from kelp. M. Woolley. il Sci Am 115:214+ S 2 '16

Possible sources of potash in America. F. K. Cameron. J Fr Inst 180:648-51 D '15; Same. Sci Am S 81:35 Ja 15 '16

Potash from kelp. I. F. Laucks. il Met & Chem Eng 14:304-8 Mr 15 '16; Abstract. J Fr Inst 181:725-6 My '16

Potash from kelp in southern California. H. L. Glaze. Met & Chem Eng 14:355-7 Ap 1 '16

Kelvin, William Thomson, 1st baron, 1824-1907
Lord Kelvin and terrestrial magnetism. C. Chree. diags Inst E E J 54:405-25 Mr 1 '16

Kenotron

Production of constant high potential with moderate power capacity. A. W. Hull. il diags Gen Elec R 19:173-81 Mr '16; Excerpt. Engineer 121:484-5 Je 9 '16

Kensico dam

Construction of the Kensico dam. il diags Engineer 121:5-6, 12 Ja 7 '16

Home-made plant that helped build the Kensico dam. W. F. Smith. il Eng N 75:326-7 F 14 '16

Quarries for Kensico dam. W. F. Smith. il plan Eng N 76:250-3 Ag 10 '16

Recent completion of the Kensico reservoir. il Sci Am 113:522+ D 11 '15

Kentucky

See also Coal mines and mining—Kentucky; Roads—Kentucky

Kentucky mining institute

5th annual meeting, Lexington, May 12-13. I. P. Tashof. il Coal Age 9:1046-7 Je 17 '16

Keokuk, Iowa**Bridges**

Condition of iron in the old Keokuk bridge. G: G. Hinckley. il diag Eng N 76:400-3 Ag 31 '16

Reconstruction of the Keokuk bridge. il diags Ry Age 61:97-100 Jl 21 '16

Kerosene

Advantages and disadvantages of kerosene as a fuel. E. H. Pomeroy. Automobile 34:682 Ap 13 '16

Burning kerosene successfully. E. W. Roberts. Sci Am S 81:373 Je 10 '16

Catalysis in the formation of gasoline from kerosene. G. Egloff and R. J. Moore. Met & Chem Eng 15:67-9 Jl 15 '16

Difficulties to be met in kerosene carburetion. E. H. Sherbondy. Automobile 34:633-4 Ap 6 '16

Great kerosene activity in England. A. L. Clayden. diags Automobile 35:404-5 S 7 '16

Kerosene oil men's fuel choice. Automobile 35:683+ O 26 '16

Kerosene standard tractor fuel. diag Automobile 35:397 S 7 '16

Kerosene vaporizer easy problem. C: E. Lucke. Automobile 34:559-60 Mr 23 '16

Paraffin for petrol engines. il diags Engineer 122:7 Jl 7 '16

Plain facts about kerosene carburetors. V: W. Page. diags Sci Am 114:584-5+ Je 3 '16

Plan for the use of kerosene. C: E. Lucke. Horseless Age 37:354-5 My 1 '16

Problems of kerosene. A. L. Clayden. diags Automobile 34:573-6 Mr 30 '16

Trying direct fuel spray. W. F. Bradley. diags Automobile 34:231-2 F 3 '16

See also Carbureters; Petroleum

Kerosene engines. See Gas and oil engines

Keys and keyways (machinery)

- Eccentric keyway cutter. E. A. Murray. diags Ry Mech Eng 90:596 N '16
 Laying out eccentric keyways. R. S. Mounce. Ry Mech Eng 90:92 F '16
 Straight keys and their strength values. P. K. Reed. Mach 22:864-5 Je '16
 Woodruff keys and keyways. diags Mach 22: 586-7 Mr '16

Khaki

- World in khaki. Textile World 51:3205+ J1 15 '16

Kiers

- Jefferson control of circulation by positive action time valve. il Textile World 51:4259 S 30 '16
 Machinery for bleaching, dyeing, and printing cotton fabrics. il diags Engineer 121:308-10 Ap 14 '16

Kilns

- Artificial seasoning of timber. O. Craig. Sci Am S 81:395 Je 17 '16
 Calcination of zinc carbonate. W. P. Simpson. diags Met & Chem Eng 14:181-3 F 15 '16
See also Cement kilns

Kinetic theory of gases. *See* Gases, Kinetic theory of**Kirchhoff, Charles William Henry, 1853-1916**

- Sketch. por Eng & Min J 102:227 J1 29 '16; Iron Age 98:192-3 J1 27 '16; Iron Tr R 59: 160 J1 27 '16
 Sketch. R. W. Raymond. por Am Inst Min E Bul 119:2075-9 N '16

Kitchen utensils

- Kitchen equipment for the one-armed soldier-cook. il Sci Am 114:305 Mr 18 '16

Kitchens

- Built-in conveniences for the modern kitchen. C. A. Byers. il diags Bldg Age 38:51-5 Ap '16
 Good housekeeping institute model kitchens. il Metal Work 86:445-6 O 6 '16

Kitchens, Portable

- Model field kitchens used by German army. Metal Work 84:738 D 10 '15

Kites

- Small oscillations of a kite; abstract. G. H. Bryan. Am Soc M E J 38:355 Ap '16

Kjeldahl flasks

- Apparatus for Kjeldahl determinations. W. W. Randall. diag J Ind & Eng Chem 8:639-40 J1 '16
 Kjeldahl fume remover. F. G. Merkle. diags J Ind & Eng Chem 8:521-2 Je '16

Kjeldahl method. *See* Nitrogen**Knit goods**

- Estimating cost of knit underwear. Textile World 51:207+ D 18 '15
 Imperfect knit goods. il Textile World 51:201 D 18 '15
 Kinks for knitters. Textile World 51:203+ D 18 '15
 Knit goods convention; program of meetings and list of exhibitors. Textile World 51: 1707+ Ap 8 '16
 Knit goods feel extremes of good and bad trade. Textile World 51:655, 659+ Ja 15 '16
 Knit goods finishing machine. Textile World 51:2853 Je 17 '16
 Knit goods ironer and dryer. il Textile World 51:3735 Ag 26 '16
 Knit goods 1914 census. Textile World 51: 2838+ Je 17 '16
 Knit-underwear industry. bibliog U S Bur For & Dom Com misc ser 32:1-217 '15
 Manufacture of full fashioned knickers. diags Textile World 51:4537 O 21 '16
 National association of hosiery and underwear manufacturers 12th annual convention. Textile World 51:2431+ My 20 '16
 Proportions of yarn in fleece fabric. E. Tompkins. Textile World 51:1857 Ap 15 '16
 Shaped knitted web. il Textile World 51:2853+ Je 17 '16
 Tensile strength of cotton knit goods. E. Tompkins. Textile World 51:1467 Mr 18 '16
See also Bathing suits; Fur fabric; Hosiery; Puttees

Knitting

- Imitation astrachan effects in knitting. W. Davis. il Textile World 51:1859+ Ap 15 '16
 Plating on latch needle rib machines. il Textile World 51:1137 F 19 '16
 Relation of yarn number to needles per inch. E. Tompkins. Textile World 51:3989+ S 16 '16
 Uneven yarn in knitting. Textile World 51: 27+ D 4 '15

Knitting machines

- Clocking mechanism for circular knitting machines. diags Textile World 51:4931+ N 18 '16
 Equalizing take-up tension on circular knitting machines. diag Textile World 51:3999 S 16 '16
 Feeding the dial needles. E. Tompkins. Textile World 51:2493+ My 20 '16
 Improved knitting machines. il Textile World 51:3293+ J1 22 '16
 Kinks on the adjustment knitting frames. Textile World 51:3647 Ag 19 '16
 Knit-underwear industry. U S Bur For & Dom Com misc ser 32:150-61 '15
 Knitting stop motion. diag Textile World 51: 4933 N 18 '16
 Metal laces made on flat knitting machines. il Textile World 51:4923 N 18 '16
 Needle cam design for high speed machines. E. Tompkins. diags Textile World 51:3639 Ag 19 '16
 Pearl stitch knitting machine. il Textile World 51:760 Ja 15 '16
 Setting a knitting machine. Textile World 51:1469+ Mr 18 '16
 Stop motion kink for knitters. H. E. Slaney. diag Textile World 51:3291 J1 22 '16
 Take-up for circular knitting machines. diag Textile World 51:4543+ O 21 '16
 Unsolved problem in loop-wheel knitting. E. Tompkins. diags Textile World 51:669+ Ja 15 '16
 Warp knitting machines for fabric gloves. il Textile World 51:209 D 18 '15
 Yarn changing mechanism. Textile World 51: 217+ D 18 '16
 Yarn feeding problem in knitting machines. E. Tompkins. diags Textile World 51:4923+ N 18 '16

Knitting mills

- Prevention of waste in a knitting mill. Textile World 51:4531+ O 21 '16
 System for keeping stock in knitting mills. Textile World 51:3991 S 16 '16
See also Hosiery mills

Accounting

- Uses of knitting mill cost accounting system. R. H. Butz. Textile World 51:4531 O 21 '16

Employees

- Distribution of employees in an underwear mill. Textile World 51:4929 N 18 '16

Knitting needles

- Needles by submarine. Textile World 51:4915 N 18 '16

Knives

- Electricity in the manufacture of the pocket knife. F. A. Buttrick. il Gen Elec R 19:81-5 Ja '16

Knives, Drawing

- Cutting clay tunnel face with special knife. diags Eng N 76:360 Ag 24 '16
 Drawknife pulled by hoist digs tough clay in shaft bottom. D. H. Fleming. diag Eng Rec 74:481 O 14 '16

Knots and splices

- How to splice wire rope. C. J. Fuetter. il Coal Age 8:834 N 20 '15; Same. Eng & Min J 100: 1006 D 18 '15; Same. Power 43:63 Ja 11 '16
 Tying a bowline knot. E. J. Clark. il Power 44:530 O 10 '16
 Tying a bowline knot. F. West. il Power 44: 342 S 5 '16

Kodaks. *See* Cameras**Kongo, Belgian**

- Katanga copper. R. Williams. Eng & Min J 102:912-13 N 18 '16

Korea

- Government-general of Chosen, Japan. J. K. Goodrich. Am Ind 16:31-3 My '16

Kraft paper

Kraft paper and its uses. W. R. Brown. *il Am For* 22:150-2 Mr '16

Kutter's formula

Bazin vs. Ganguillet and Kutter. A. G. Hillberg. *Eng Rec* 74:494-5 O 21 '16

Better Kutter's formula coefficients. R. E. Horton. *Eng N* 75:373-4 F 24 '16; Same cond. *Eng & Min J* 101:675 Ap 15 '16

Coefficients of retardation in Kutter's formula. F. C. Scobey; R. E. Horton. *il Eng N* 75: 862-3 My 4 '16

Determination of roughness coefficient for Kutter's formula for dredged ditches in Bolivar county, Mississippi. C. E. Ramser. *il Eng & Contr* 46:229-31 S 13 '16

L

Labor and capital

Bridging the chasm between capital and labor. G. Weiss. *Am Ind* 17:22-3 N '16

Closer co-operation between employers. G. Pope. *Am Ind* 17:12-14 S '16

Coal mining, politics and labor. *Coal Age* 10: 358-9, 401, 511-12, 684-5 Ag 26-S 2, 23, O 21 '16

Industrial efficiency and industrial peace. *Inland Ptr* 57:196-7 My '16

Labor and capital problem. *Eng & Min J* 102: 738-40 O 21 '16

Labor and wage situation from various angles. *Elec W* 68:1084-5 D 2 '16

Labor conditions after the war. *Met & Chem Eng* 15:277 S 15 '16

Labor disputes and public utilities; meeting of Academy of political science. *Elec Ry J* 48:1106-9 N 25 '16

Labor organizations and government. J. A. Emery. *Am Ind* 16:18-21 My '16

Labour problem. *Engineer* 122:238-9 S 15 '16

Labour's delusion and danger. *Engineer* 122: 401 N 3 '16

President's address to the engineering section of the British association. G. Stoney. *Engineer* 122:205-7 S 8 '16; Excerpts. *Elec W* 68:870-1 O 28 '16

Revolutionary trend of foreign labor. D. C. Brewer. *Textile World* 51:4131+ S 23 '16; Same. *Am Ind* 17:13-15 O '16

Sabotage—actual and mental. F. E. Ruslander. *Am Ind* 17:17-19 S '16

Solution of the labor problem. *Eng Rec* 74:399 S 30 '16

See also Arbitration; Industrial; Employees; Industrial betterment; Profit sharing; Strikes; Trade unions; Wages; Welfare work in industry; Workmen's compensation

Labor and laboring classes

Labor and industry after the war. F. C. Howe. *Eng M* 51:22-4 Ap '16

See also Accidents; Industrial; Apprentices; Arbitration; Industrial; Bonus system; Child labor; Coal miners; Convict labor; Day labor; Diseases; Industrial; Efficiency; Industrial; Employees; Factory sanitation; Hours of labor; Housing problem; Industrial betterment; Industrial education; Insurance; Industrial; Miners; Motion study; Occupations; Dangerous; Piece-work; Profit sharing; Railroads—Employees; Safety devices and measures; Saving; Scientific management; Street railroads—Employees; Strikes; Time study; Trade unions; Wages; Welfare work in industry; Woman—Employment; Workmen's compensation

Labor camps

State-wide clean-up of labor camps in California. J. J. Rosenthal. *il Eng N* 75:1074-6 Je 8 '16

See also Construction camps

Labor laws and legislation

See also Foundry laws; Hours of labor; Mining laws; Scientific management—Laws and legislation; Workmen's compensation

Labor unions. *See* Trade unions

Laboratories

Central testing laboratories for New York city. R. Trautschold. *Coal Age* 9:244-5 F 5 '16

Recent developments in electric incandescent lamps in relation to illuminating engineering. J. T. Morris. *il Illum Engr* 9:10-13 Ja '16

See also Scientific research; Underwriters' laboratories

Laboratories, Aerodynamic. *See* Aerodynamic laboratories

Laboratories, Chemical. *See* Chemical laboratories

Laboratories, Electric. *See* Electric laboratories

Laboratories, Engineering. *See* Engineering laboratories

Laboratories, Municipal. *See* Municipal laboratories

Laboratories, Physical. *See* Physical laboratories

Laboratories, Underwriters'. *See* Underwriters' laboratories

Laboratory cars

Local water tested by laboratory on wheels. J. H. O'Neill. *il Eng Rec* 74:319 S 9 '16

Lace

Lace and edging machine. *il Textile World* 51:2496+ My 20 '16

Lace yarns as made in England. S. Wakefield. *Textile World* 51:2335+ 2659+, 4151+ My 13, Je 3, S 23 '16

Metal laces made on flat knitting machines. *il Textile World* 51:4923 N 18 '16

Women's muslin-underwear industry. U S Bur For & Dom Com misc ser 29:156-63 '15

Lackawanna railroad. *See* Delaware, Lackawanna and Western railroad

Lackawanna steel company, Lackawanna, New York

Abstract of annual report, 1915. *Eng & Min J* 101:687 Ap 15 '16

Making success of duplex process. G. B. Waterhouse. *il diags plan Iron Tr R* 59:879-86 N 2 '16; Same; with discussion. *Iron Age* 98:999-1001+ N 2 '16

Lacquer

Effect of the war on lacquers. W. A. Jones. *Metal Ind n s* 14:13-14 Ja '16

See also Japanning

Lactic acid

Study of the stereo-isomerism of a fermentation lactic acid. S. J. Thomas. *J Ind & Eng Chem* 8:821-3 '16

Lactose

Optical rotatory powers of some acetylated derivatives of maltose, cellose and lactose. C. S. Hudson and R. Sayre. *Am Chem Soc J* 38:1867-73 S '16

Ladders

Electrical maintenance methods in a great office building; Equitable building, New York city. *il Elec W* 67:206-8 Ja 22 '16

Ladder made a part of substation equipment by Ohio company. *il Elec W* 67:216 Ja 22 '16

Ladles. *See* Foundry ladles

Lake Washington canal

Completion of Lake Washington canal. G. C. Dohm. *il map Int Marine Eng* 21:416-20 S '16

Lamp posts

See also Street lighting fixtures

Lamp posts, Concrete

Concrete lamp-post adaptable to gas. *il diags Am Gas Light J* 104:13 Ja 3 '16

Concrete lighting standard made by centrifugal process. L. R. W. Allison. *il diags Concrete* 8:152-3 Ap '16; Same. *Sci Am S* 82: 128 Ag 19 '16

Ornamental concrete posts. *il Elec W* 67:729-30 Mr 25 '16

Lamp shades

Design and manufacture of diffusing glass shades. S. G. Hibben. *il diags Illum Eng Soc* 11:895-932 no 8 '16

Lamps

See also Electric lamps; Gas lamps; Headlights; Light signals; Reflectors; Safety lamps; Searchlights

Lamps, Tungsten. *See* Electric lamps, Tungsten

Land

See also Agriculture; Clearing of land; Farms; Mineral lands; Parks; Surveying

Land clearing. *See* Clearing of land**Land descriptions**

Writing land descriptions. *Eng Rec* 73:260, 332, 427 F 19, Mr 4, 25 '16

Land drainage. *See* Drainage**Land titles**

See also Land descriptions

Landscape forestry

Landscape forestry. R. B. Maxwell. *il Am For* 22:680-2 N '16

Landscape gardening

Prairie style of landscape architecture. W. Miller. *Arch Rec* 40:590-2 D '16

What to plant on factory grounds. E. S. Park. *il Factory* 16:461-3 My '16

See also Country homes; Gardens; Parks; Parkways; Railroads—Landscape gardening; Trees

Landslides

Rock avalanches. G. E. Mitchell. *il Am For* 21:1090-5 D '15

See also Earthwork—Slides; Panama canal—Slides

Language. *See* English language; Punctuation; Slang**Langston, Tolbert**

Master minds of type and press. J. S. Ritenour. *Inland Ptr* 56:807-8 Mr '16

Lantern projection

Optic projection as a problem in illumination; magic lantern. J. A. Orange. *diags Illum Eng Soc* 11:773-8, 787-93 no 8 '16

Projecting lantern; with discussion. J. B. Taylor. *diags Illum Eng Soc* 11:414-35 no 3 '16; Same. *Sci Am S* 82:12-15 J1 '16

Lanterns, Electric. *See* Electric lanterns**Lapland****Industries and resources**

Iron ore in Lapland. *Iron Tr R* 58:545 Mr 9 '16

Larch

Galactan of *larix occidentalis*. A. W. Schorger and D. F. Smith. *J Ind & Eng Chem* 8:494-9 Je '16

Larks

Larks. *il Am For* 22:540-1 S '16

Latent life. *See* Life**Lathes**

Automatic mechanical control of lathes and screw machines. L. D. Burlingame. *il diags Am Soc M E J* 38:103-9 F '16; Abstract. *Iron Age* 96:1406 D 16 '15; Discussion. *Am Soc M E J* 38:109-12 F '16

Ball bearings in lathe construction. *il Ry Mech Eng* 90:538-9 O '16

Bridgeford heavy-duty lathe. *il Mach* 22:439 Ja '16

Combination lathe boring-bar and holder. M. P. Chaplin. *diags Mach* 22:425-6 Ja '16

Copper band turning lathe. M. Jenckes. *il Metal Ind n s* 14:353 Ag '16

Dodge shell turning lathes and tools. *il Mach* 22:718-19 Ap '16

Fitchburg 8-inch Lo-swing lathe. *il diags Mach* 23:170-2 O '16

General ordnance lathe. *il Mach* 22:524-5 F '16

Gisholt machine co. shell lathe has improved features. *il Iron Tr R* 59:684 O 5 '16; *Iron Age* 98:768 O 5 '16

Hart-Parr ball-bearing lathe headstock. *diag Mach* 22:876 Je '16

Hart-Parr shell boring and turning lathe. *il Mach* 22:805-7 My '16

Heavy carwheel lathe. *il Iron Age* 98:298-9 Ag 10 '16

Heavy-duty engine lathe built by Cleveland machinery & supply co. *il Iron Tr R* 59:234 Ag 3 '16

Heavy-duty engine lathe built by Oliver machinery co. *il Iron Tr R* 59:120 J1 20 '16

Heavy-duty manufacturing lathe. *il Iron Age* 98:1052 N 9 '16

Heavy-duty single-pulley drive lathes. *il Iron Age* 98:179 J1 27 '16

Heavy-duty 16-in. turret lathe. *il Iron Age* 96:1461 D 23 '15

Heavy-duty 20-in. engine lathe. *il Iron Age* 97:485 F 24 '16

Heavy-duty 26-in. cone-driven lathe. *il Iron Age* 97:139 Ja 13 '16

High-duty lathe of the low-swing type. *il Iron Age* 97:140-1 Ja 13 '16

Himoff single-purpose lathes. *il Mach* 22:815 My '16

Improvements in heavy lathe. *il Iron Tr R* 58:294 F 3 '16

Improvised lathe for bridge-pier cylinders. L. Goodday. *diag Eng N* 75:611 Mr 30 '16

Inclosed headstock roll turning lathe. *il Iron Age* 98:1171 N 23 '16

Inspecting lathes. J. J. Ralph. *diags Mach* 23:7-10 S '16

Labor saving devices in the machine shop. A. A. Dowd. *il diags Eng M* 51:203-8 My '16

Large shell lathe with automatic electric control. *il diags Engineer* 122:124-5 Ag 11 '16

Lathe for boring 6-inch shells. *il Engineer* 120:463 N 12 '15

Lathe with special quick change gears. *il Iron Age* 97:1553 Je 29 '16

Lehmann engine lathe. *il Mach* 22:997-8 J1 '16

Machining rifling bars on the bench lathe. A. H. Cleaves. *diags Mach* 22:751-2 My '16

Manufacturing lathe with few speeds. *il Iron Age* 97:600 Mr 9 '16

New lathe of Standard lathe & tool company. *il Iron Age* 97:487 F 24 '16

Positive indicator stops applied to lathe work. *il diag Mach* 22:1038 Ag '16

Push-button controlled polishing lathe. *il Iron Age* 98:183 J1 27 '16

Putnam 42-inch engine lathe. *il diag Mach* 23:84-5 S '16

Rahn engine lathes. *il Mach* 22:721-2 Ap '16

Reed-Prentice shell lathe. *il Mach* 22:821-2 My '16

Rejuvenated turret lathe. W. A. Hyde. *il diags Iron Age* 97:1192-3 My 18 '16

Roller follow-rests with ball thrust bearings. E. K. Morgan. *diags Mach* 22:335-6 D '15

Roughing out Fellows gear shaper cutter blanks; modifications in construction of Gridley automatic. E. K. Hammond. *il diags Mach* 22:476-8 F '16

Roulsted engine lathe. *il Mach* 23:77-8 S '16

Shell turning attachments for lathes. *il diags Iron Age* 97:474-5 F 24 '16

Shell turning lathe. *il Mach* 22:814 My '16

Shook & Fletcher projectile turning lathe. *il Mach* 22:431 Ja '16

Sidney back-geared engine lathe. *il Mach* 22:339 D '15; *Iron Age* 97:371 F 10 '16

Taper attachment for turret lathes. *il diags Ry Mech Eng* 90:141-2 Mr '16

Testing special shell-boring lathes. L. C. Morrow. *il diags Mach* 23:38-9 S '16

Thread milling in the lathe. E. T. Spidy. *il diags Mach* 22:975 J1 '16

Turret head for engine lathes. *il Iron Age* 97:665 Mr 16 '16

Turret lathe for boring shells. *il Iron Age* 98:1114 N 16 '16

Turret tool holder for lathes. *il Iron Age* 97:833 Ap 6 '16

Turret tool post attachment for lathes. *il diag Engineer* 121:159 F 18 '16

20-in. quick change geared lathe. *il Iron Age* 98:1225 N 30 '16

Universal turret lathe. *diag Iron Age* 98:14 J1 6 '16

Warren automatic hydraulic lathe. *il diags Mach* 22:517-20, 916-17 F, Je '16

See also Machine shop practice; Machine tools; Turning

Manufacture

Building interchangeable-part lathes. O. J. Abell. *il Iron Age* 97:1488-90 Je 22 '16

New method of building lathes. *il Mach* 22:877-9 Je '16

Latin America

See also Monroe doctrine; South America

Commerce

Great Pan American opportunity. J. Barrett. *Eng M* 50:821-9 Mr '16

See also South America—Commerce

- Latitude**
Method of transforming latitude and longitude into plane co-ordinates. S. H. Thorndike. *diags Boston Soc C E J* 3:363-76 S '16
- Lattice work**
Marking centers for lattice screen for porch. *il Bldg Age* 38:54-5 Ag '16
- Launching**
Pressure on a vessel's bottom during launching. G. H. Barber. *diags Int Marine Eng* 21:187-9 Ap '16
- Laundry**
Alleged germicidal value of the electric current in laundry practice. H. G. Elledge. *Elec R & W Elec'n* 69:338 Ag '19 '16
Cause of the pink color observed in certain hypochlorite bleaching solutions. H. G. Elledge. *J Ind & Eng Chem* 8:780-1 S '16
Electrical laundry process combined with electric motor drive. *il Elec R & W Elec'n* 68:1118-19 Je '17 '16
Hot-water service in a hotel laundry. *il diag Metal Work* 85:508-9 Ap '14 '16
Laundries as a central-station load. *Elec W* 67:210-11 Ja '22 '16
Malt extract in the laundry. A. F. Musgrave. *Sci Am S* 82:107 Ag '12 '16
Proper use of chemicals in the laundry. H. M. Shilstone. *Sci Am S* 82:203 S '23 '16
Results of relative surface tension measurements of solutions of soap and of solutions of soap and various alkalis. H. G. Elledge and J. J. Isherwood. *J Ind & Eng Chem* 8:793-4 S '16
- Laundry apparatus**
Modern steam laundry machinery. *il diags Engineer* 122:340-1, 385-7 O '20, N '3 '16
Motor-driven ironers. *il Elec W* 67:167-8 Ja '15 '16
Various types of laundry trays. E. R. Porter. *diags Dom Eng* 75:96-7 Ap '22 '16
- Lava**
Sewer pipes from Hawaiian molten lava. *Sci Am* 114:582 Je '3 '16
- Lavatories**
One-piece lavatory, its construction and installation. E. R. Porter. *diags Dom Eng* 74:226-8, 258-60, 295-7 F '19-Mr '4 '16
- Law, Ruth**
Ruth Law and her remarkable flight from Chicago to New York. *por il Sci Am* 115:495+ D '2 '16
- Law**
See also Automobile laws and regulations; Building laws; Contracts; Damages; Debt; Electric railroads—Law; Forestry laws and legislation; Guaranties and sureties; Heating—Laws and regulations; Highway law; Legislation; Libel and slander; Liens; Machinery—Law; Mechanics' liens; Mining laws; Patent laws and legislation; Plumbing laws and regulations; Public utilities—Law; Railroad law; Receivers; Sales; Street railroad law; Trade marks; Water laws; Waterworks—Laws and regulations; Workmen's compensation
- Lawn mowers, Motor**
Advantages of motor lawn mowers. *Munic Eng* 49:suppl 5 D '15
- Lawrence, Kansas**
Bridges
Design of the Massachusetts street bridge over the Kansas river at Lawrence. *diags Eng & Contr* 45:35-9 Ja '12 '16
- Lawrence, Massachusetts**
Sewerage
Development of the purification of sewage by aeration and growths at Lawrence. H. W. Clark. *J Ind & Eng Chem* 8:653-4 Jl '16
- Leaching.** *See* Hydrometallurgy
- Lead**
American pig lead. *Eng & Min J* 102:620 O '7 '16
Colorimetric method for the determination of copper and iron in pig lead, lead oxides, and lead carbonate. B. S. White. *J Ind & Eng Chem* 7:1035-6 D '15
Density of lead from radioactive minerals. T. W. Richards and C. Wadsworth. *Am Chem Soc J* 38:221-7 F '16
Galena in gold and silver ores. P. W. Avery. *Eng & Min J* 101:819-20 My '6 '16
Simple and rapid assay of lead. G. Torossian. *J Ind & Eng Chem* 8:331 Ap '16
Study of the lead electrode. F. H. Getman. *il Am Chem Soc J* 38:792-801 Ap '16
See also Lead burning; Lead metallurgy; Lead mines and mining; Plumbing; Red lead; White lead
- Lead arsenates**
Arsenates of lead. C. C. McDonnell and C. M. Smith. *Am Chem Soc J* 38:2027-38 O '16
Arsenates of lead; equilibrium in the system PbO, As₂O₅, H₂O. C. C. McDonnell and C. M. Smith. *Am Chem Soc J* 38:2366-9 N '16
Lead arsenates; a study of the factors controlling the reactions of lead nitrate and lead acetate with disodium arsenate. G. E. Smith. *Am Chem Soc J* 38:2014-27 O '16
- Lead borers**
Bugs bore into leaded cables. *il Eng N* 74:1006 N '18 '15; Same. *Sci Am S* 80:411 D '25 '15
- Lead burning**
Description of apparatus and methods used for welding lead plates. J. F. Hobart. *il diags Mach* 22:582-4 Mr '16
Teaching the art of chemical lead burning in the West Side Y. M. C. A., New York. *il Metal Work* 85:673-5 My '19 '16
Trouble with lead-burning tank. *Metal Work* 85:289 F '25 '16
- Lead industry and trade**
Foreign trade in lead and zinc. *Eng & Min J* 102:353, 800 Ag '19, O '28 '16
Lead and zinc in the Joplin district in 1915. J. A. Zook. *Eng & Min J* 101:64-5 Ja '8 '16
Lead statistics. *map Eng & Min J* 101:56-60 Ja '8 '16
Smelting and selling Australia's base metals. Mahon. *Eng & Min J* 101:1120-1 Je '24 '16
- Lead iodide**
Thermodynamic properties of silver and lead iodides. H. S. Taylor. *Am Chem Soc J* 38:2295-310 N '16
- Lead metallurgy**
Bardill drossing apparatus. J. O. Bardill. *diag Eng & Min J* 100:969 D '11 '15
Blast-furnace slag shells. C. Pigott. *Eng & Min J* 102:626-7 O '7 '16
Concentration and flotation of lead ores in Southeast Missouri. *Met & Chem Eng* 15:93-5 Jl '15 '16
Decomposition and reduction of lead sulphate at elevated temperatures. W. Mostowitsch. *Am Inst Min E Bul* 113:871-80 My '16
Dewatering table-sands and concentrates. L. A. Delano. *Eng & Min J* 102:27-8 Jl '1 '16
Electrolytic lead. D. A. Lyon. *Met & Chem Eng* 14:176 F '15 '16
Electrolytic recovery of lead from brine leaches. C. E. Sims and O. C. Ralston. *diags Met & Chem Eng* 15:410-15 O '1 '16
Electrolytic recovery of lead from brine leaches. M. R. Thompson; O. C. Ralston. *Met & Chem Eng* 15:614-15 D '1 '16
Flow of air in lead blast furnaces. A. W. Tournay-Hinde. *Eng & Min J* 102:392-3 Ag '26 '16
Hydrometallurgy of lead. H. R. Ellis. *Met & Chem Eng* 14:122 F '1 '16
Hydrometallurgy of zinc and lead in 1915. D. A. Lyon, O. C. Ralston and J. F. Cullen. *Met & Chem Eng* 14:30-2 Ja '1 '16
Lead smelting data of the Herculanum plant. *Eng & Min J* 101:985 Je '3 '16
Lead smelting practice. H. Garlich; A. S. Dwight. *Eng & Min J* 102:948-9 N '25 '16
Lead-smelting practice in the United States. A. S. Dwight. *il diag plan Eng & Min J* 102:671-7 O '7 '16
Lead sulphide roasting reactions. W. Rinders. *Eng & Min J* 102:876 N '11 '16
Matte granulation at Herculanum, Mo. S. P. Lindau and H. B. Smith. *il diags Am Inst Min E Bul* 119:2057-61 N '16
Matte sintering and double roasting. *Eng & Min J* 101:943 My '27 '16
Mechanical feeding as applied to silver-lead blast furnaces. L. D. Anderson. *il diags Eng & Min J* 101:885-8 My '20 '16
Metallurgy of lead in 1915. H. O. Hofman. *Eng & Min J* 101:89-90 Ja '8 '16

Lead metallurgy—*Continued*

- Miller lead-casting wheel. *il Eng & Min J* 102: 662-3 O 7 '16
 Operations in the Slocan district. British Columbia. D. Lay. *il flow sheet Eng & Min J* 101:463-7 Mr 11 '16
 Refining leady matte; patent by N. V. Hyblinette. *diag Met & Chem Eng* 14:711-12 Je 15 '16
 Roasting furnace for lead matte; patent by U. Wedge. *diag Met & Chem Eng* 15:601-2 N 15 '16

Lead mines and mining**Australia**

- Broken Hill underground mining methods. E. J. Horwood. *diags Am Inst Min E Bul* 109:65-89 Ja '16

Burma

- Burma increasing output of the Bawdwin mines. *Eng & Min J* 101:20-1 Ja 1 '16

Missouri

- Southeastern Missouri lead district. H. A. Wheeler. *Eng & Min J* 101:59-60 Ja 8 '16

Nevada

- Yellow Pine district, Nev. L. A. Palmer. *il Eng & Min J* 102:123-5 Jl 15 '16

Virginia

- Southwest Virginia lead-zinc deposits. S. H. Ball and L. S. Thompson. *il Eng & Min J* 102:735-7 O 21 '16

Lead ores. See lead metallurgy; Lead mines and mining**Lead plating**

- Lead-plated instead of zinc and nickel-plated parts. *Iron Age* 97:1486 Je 22 '16

Lead sulphate

- Decomposition and reduction of lead sulphate at elevated temperatures. W. Mostowitsch. *Am Inst Min E Bul* 113:871-80 My '16; Abstract. *Met & Chem Eng* 15:46 Jl 1 '16

Lead sulphide

- Metal oxide and sulphide impregnation of fire-brick. N. B. Davis. *pls Econ Geol* 10: 663-75 N '15

Leadership

- Importance of leadership. H. L. Gantt. *Eng M* 51:17-21 Ap '16

Leadite

- Experiences with leadite joints at Springfield, Mass. A. E. Martin. *Eng & Contr* 45:207-8 Mr 1 '16

Leadville, Colorado

- What's the matter with Leadville? *Eng & Min J* 101:1109-10 Je 24 '16

League of American municipalities

- 20th annual convention, Newark, N. J., September 6-9. *Munic J* 41:333-4 S 14 '16

Leather

- Effect of technical education upon the leather industry. A. Rogers. *il Sci Am* 114:14-15 Ja 1 '16
 Electricity in leather manufacturing. *il Elec R & W Elec'n* 68:499-502 Mr 18 '16
 Leather investigation; the composition of some sole leathers. F. P. Veitch and J. S. Rogers. *Sci Am S* 81:54-5 Ja 22 '16
 Manufacture of leather belting. F. H. Small. *Am Soc M E J* 37:679-82 D '15; Same. *Iron Tr R* 57:1174-7+ D 16 '15; Abstract. *Iron Age* 96:1533 D 30 '15
 Manufacture of pump leathers; abstract. *Am Soc M E J* 38:934 N '16
 Substitute for sodium sulphide in leather industries; abstract. J. E. Pickles. *Met & Chem Eng* 14:663 Je 1 '16

See also Belting

Leather, Artificial

- Artificial leather for book binding. *Munic Eng* 51:33-4 Jl '16

Leaves

- Leaf photography. *il Sci Am S* 81:277 Ap 29 '16

Leavitt, Erasmus Darwin, 1836-1916

- Sketch. *por Eng & Min J* 101:743 Ap 22 '16; *Am Soc M E J* 38:327-9 Ap '16; *Power* 43: 563 Ap 18 '16

Lecithin

- Nitrogenous constituents of brain lecithin. J. E. Darrah and C. G. MacArthur. *Am Chem Soc J* 38:922-30 Ap '16

Leg. See Artificial limbs**Legislation**

- Why not a women's auxiliary to prevent unfair legislation? G. D. Crain, jr. *Textile World* 51:687+ Ja 15 '16

Lehigh Valley railroad

- Lehigh Valley terminal at Buffalo. *il diags plan Ry Age* 61:445-9 S 15 '16
 62d annual report for year ending June 30, 1916. *map Ry Age* 61:222-3, 265-8 Ag 11 '16

Lemon extract

- Analysis of non-alcoholic lemon and orange extracts. E. L. Redfern. *J Ind & Eng Chem* 8:421 My '16

Lemons

- Composition of frozen oranges and lemons. H. D. Young. *J Ind & Eng Chem* 7:1038-41 D '15
 Composition of sound and frozen lemons with special reference to the effect of slow thawing on frozen lemons. H. S. Bailey and C. P. Wilson. *J Ind & Eng Chem* 8:902-4 O '16
 Phases of the citrus by-product industry in California. R. T. Will. *flow sheets J Ind & Eng Chem* 8:78-86 Ja '16

Length, Standards of. See Standards of length**Leno**

- Styles and designs in Russian cords. *il Textile World* 51:4343+ O 7 '16
 Weaving of fine leno fabrics. *Textile World* 51: 2337+ My 13 '16

Lenses

- Automobile headlamp lens that reduces glare. *il Elec W* 66:1446 D 25 '15
 Making of a photographic objective. H. C. Lord. *il Sci Am S* 82:244-6 O 14 '16

Lenz, Alfred David, 1872-

- Art casting by a new process. R. G. Skerrett. *il Sci Am* 114:225 F 26 '16

Leprosy

- Concerning leprosy. *Sci Am* 114:125 Ja 29 '16
 Concerning leprosy. J. R. Fraser. *Sci Am* 114:325 Mr 25 '16
 Contagiousness and cure of leprosy. L. C. Frost. *Sci Am* 114:197 F 19 '16

Letterheads

- Distinctive letter-heads; a few suggestions. *Inland Ptr* 57:224a-224g My '16
 Letter-head suggestions in one color. *Inland Ptr* 57:784a-784d S '16
 See also Stationery

Lettering

- Examples of colonial lettering. J. T. Boyd, jr. *il Arch Rec* 40:588-90 D '16
 Hand lettering; its application to advertising and commercial forms. *Inland Ptr* 56:496a-496h Ja '16
 Keuffel & Esser lettering templets. *il Mach* 22: 355 D '15

Leucite

- Solubility of leucite in sulfurous acid. J. Schroeder. *J Ind & Eng Chem* 8:779-80 S '16

Levees

- Closing a break in the Colorado river. *il Ry Age* 60:996-7 My 5 '16
 Engineers recommend both reservoirs and levees to protect Columbus from floods. *Eng Rec* 73:419 Mr 25 '16
 Flood protection in Indianapolis. *il Munic Eng* 50:124-7 Ap '16
 Hydraulic-fill and wheeled-scrapers for levees. *il plan Eng N* 76:158-60 Jl 27 '16
 Levee system is expected to protect Memphis against future floods. J. H. Weatherford. *diags map Eng Rec* 73:775-7 Je 10 '16
 Lidgerwood levee building cableways on Mississippi river improvement. *il Eng & Contr* 45:528 Je 7 '16
 Machines for building levees. J. R. Slattery. *il diags Eng N* 75:986-9 My 25 '16
 Mammoth electric draglines dig diversion channels and construct levees. *il diags Eng Rec* 73:826-8 Je 24 '16
 Methods for determining subsidence and shrinkage in earthen embankment. *diags Eng & Contr* 46:351-2 O 18 '16

Levees—Continued

- Mississippi levee system. A. L. Dabney. Eng N 76:228 Ag 3 '16
 Mississippi river flood records studied with relation to levee grades. A. L. Dabney. map Eng Rec 73:452-5 Ap 1 '16
 Recent work with slackline cableway levee building machine. il Eng & Contr 45:529 Je 7 '16
 River diversion and flood control in Missouri. Eng N 76:344-5 Ag 24 '16
 Wheeled road aids concreting of levee slopes. il Eng Rec 73:123 Ja 22 '16
See also Flood control

Lever bill

- Cotton trade and the Lever bill. T: Sinclair. Textile World 51:506 Ja 15 '16

Libel and slander

- Danger of maligning competitive products. E. J. Buckley. Metal Work 86:87 Jl 21 '16

Liberty of speech. *See* Libel and slander**Liberty of the press**

- Oppression of printers and the liberty of printing. H; L. Eullen. Inland Ptr 58:86-8, 203-8 O-N '16
See also Libel and slander

Libraries

- Libraries of Washington, D. C. Sci Am 114: 120 Ja 29 '16
 Safety-first exhibit in New Haven public library. K. C. Walker. il Elec Ry J 47:358 F 19 '16
 U. S. government libraries at Washington. H. H. B. Meyer. Sci Am S 82:70-1 Jl 29 '16
See also Library architecture; Library service

Libraries, Engineering. *See* Engineering libraries**Libraries, Railroad.** *See* Railroad libraries**Library architecture**

- Haddington branch, the Free library of Philadelphia. C. M. Price. il diags plans Arch Rec 40:44-62 Jl '16
 Haddington branch, the Free library of Philadelphia and others; views and plans. Brickb 25:107, pl 49-53 Ap '16
 Needham public library, Needham, Mass.; views and plans. Brickb 25:187, pl 97-101 Jl '16
 Public library at Waltham, Mass. M. Mower. il Arch Rec 39:320-35 Ap '16

Library of Congress

- U. S. government libraries at Washington. H. H. B. Meyer. Sci Am S 82:70-1 Jl 29 '16

Library service

- If you don't see what you want, ask for it; library service of Portland cement association. Concrete 9:140 N '16
 Library extension by volunteer service for aid in research. M. C. Krarup. Automobile 34:1024-5 Je 8 '16
 Library service bureau of the United engineering societies. Eng & Min J 100:1054 D 25 '15
 Library service for aid in research. Automobile 34:1078 Je 15 '16

Licenses for engineers. *See* Engineers—Licenses**Liens**

- Building boom vs. unfair lien laws. Bldg Age 38:46-7 Ja '16
 Massachusetts lien law as revised. Eng N 76:253 Ag 10 '16
See also Mechanics' liens

Life

- Latent life. P. Becquerel. Sci Am S 82:274-5, 294 O 28-N 4 '16
 Modern conceptions of spontaneous generation. G. B. Reed. Sci Am S 82:334-5 N 18 '16
 Organism as a thermodynamic mechanism. H. Elliot. Sci Am S 82:338-9 N 25 '16
 Specific characteristics of vitality. D: F. Harris. Sci Am S 82:34-5 Jl 15 '16
See also Longevity

Life saving

- See also Fire departments—Rescue work; First aid in illness and injury; Lighthouses; Lightning protection; Mine rescue work; Safety at sea; Safety devices and measures*

Life saving apparatus

- Combination helmet and suit used in escaping from disabled submarines. il Sci Am 114: 642 Je 17 '16
See also Mine rescue work; Pulmotor; Safety devices and measures

Lifeboats

- Improved life-boat hoist. il Sci Am 115:431 N 25 '16

Lift bridges. *See* Bridges, Lift**Lifting magnets**

- Building a small lifting magnet. diags Elec R & W Elec'n 68:689-90 Ap 15 '16
 Cutler-Hammer lifting magnets. il Elec R & W Elec'n 67:1127 D 18 '15; Elec W 67:282 Ja 29 '16; Met & Chem Eng 14:229-30 F 15 '16
 Lake vessel carries its own lifting magnets for loading pig iron. il Elec R & W Elec'n 69:80 Jl 8 '16
 Small lifting magnet. diags Elec R & W Elec'n 68:557-8 Mr 25 '16

Lifts. *See* Elevators**Light**

- Candle-power of the black body and the mechanical equivalent of light. E. P. Hyde, F. E. Cady, and W. E. Forsythe. J Fr Inst 181:420-1 Mr '16
 Effect of glare on vision. Illum Eng Soc 10: 1000-14 no 9 '15
 Light—a dominant force in life processes. F. P. Lewis. Illum Eng Soc 11:650-6 no 6 '16
 Light and illumination. C: P. Steinmetz. W Soc E J 20:737-51 N '15; Same. Sci Am S 81:194-5, 218-19 Mr 25-Apr 1 '16
 Light and lighting. E: P. Hyde. Gen Elec R 19:107-8 F '16
 Measuring the pressure of light; abstract. G. D. West. J Fr Inst 182:552 O '16
 Photochemistry. H. A. Curtis. Met & Chem Eng 14:183-6 F 15 '16; Same. Sci Am S 81: 181, 214-15 Mr 18, Ap 1 '16
 Psychology and light. H. Muensterberg. Illum Eng Soc 11:640-9 no 6 '16
 Radiant luminous efficiency of the carbon incandescent lamp and the mechanical equivalent of light; abstract. H. E. Ives and E. F. Kingsbury. Elec W 68:775 O 14 '16
 Report of the committee on progress; physics. Illum Eng Soc 11:753-6 no 8 '16
See also Brightness; Diffraction; Eye; Glare; Headlights; Light projection; Light signals; Lighting; Luminescence comparator; Phosphorescence; Photochemistry; Photography; Photometry; Phototherapy; Polarization (light); Radiation; Radioactivity; Reflection (light); Reflectors; Sight; Spectra; Ultra-violet rays; Zodiacal light

Standards

- 1915 report of committee on nomenclature and standards of illuminating engineering society. Illum Eng Soc 10:642-9 no 8 '15; Same. Am Gas Light J 104:55, 58 Ja 24 '16; Discussion. Illum Eng Soc 10:649-50 no 8 '15
 1916 report of the committee on nomenclature and standards of the illuminating engineering society; with discussion. Illum Eng Soc 11:836-45 no 8 '16

Light, Colored

- Application of Crova's method of colored light photometry to modern incandescent illuminants; with discussion. H. E. Ives and E. F. Kingsbury. Illum Eng Soc 10:716-26 no 8 '15
 Yellow light; with discussion. M. Luckiesh. Illum Eng Soc 10:pt 1a 1015-38 no 9 '15

Light projection

- Adding hours to summer days for outdoor recreations. il Elec W 67:1462-3 Je 24 '16
 Building exterior, exposition and pageant lighting; abstract. W. D. Ryan. Elec R & W Elec'n 69:761 O 28 '16
 Colored lamps supplement flood-lighting of two California courthouses. il Elec W 68:31 Jl 1 '16
 Diffusing media—projection and focusing screens. Illum Eng Soc 11:92-9 no 1 '16
 Flood lamp for industrial work. il Elec W 67: 57 Ja 1 '16
 Flood-lighting a restricted building area with hooded projector lamps. F. Kivel. il Elec W 68:915-16 N 4 '16

Light projection—Continued

- Flood lighting a 30-ft. silk flag on a twenty-story building. *il Elec W 67:1173 My 20 '16*
- Flood lighting by gas gives most satisfactory lighting effect. C. B. Babcock. *Am Gas Light J 105:212-13 O 2 '16*
- Flood lighting discussed at meeting of Chicago section of the Illuminating engineering society, Jan. 13. *il Elec R & W Elec'n 68:141-2 Ja 22 '16*
- Flood lighting effects marked economy in building construction. *il Elec R & W Elec'n 68:100 Ja 15 '16*
- Flood lighting for typical civic celebration. New Haven, Conn. L. C. Porter. *il diag Elec R & W Elec'n 69:925-6 N 25 '16*
- Flood lighting of bathing beaches. *il Elec R & W Elec'n 69:59-61 J1 8 '16*
- Flood lighting of railroad yards. *il Elec R & W Elec'n 69:944 N 25 '16*
- Flood lighting of Sheepshead Bay speedway. *il Elec R & W Elec'n 68:1059 Je 10 '16*
- Flood-lighting rushes building construction at Champaign, Ill. *il Elec W 67:775 Ap 1 '16*
- Flood-lighting the Harvard football practice field. *il Elec W 68:772 O 14 '16*
- Flood lighting the world's tallest building. H. H. Magsdick. *il Elec W 68:412-14 Ag 26 '16*
- Home-made flood-light projector for construction work. M. J. Moriarty. *il Elec R & W Elec'n 68:555 Mr 25 '16*
- How a flood-lighting salesman demonstrates his wares. *il Elec W 67:715 Mr 25 '16*
- Illumination of Wisconsin's capitol dome a splendid example of flood lighting. *il diag Elec R & W Elec'n 69:581 S 30 '16*
- Incandescent headlights for street railway and locomotive service. P. S. Bailey. *il diags Gen Elec R 19:638-45 J1 '16*
- Indianapolis bank adopts flood lighting. *il Elec R & W Elec'n 67:1104 D 18 '15; Elec W 66:1420 D 25 '15*
- Light projection; applications, etc.; abstract. E. J. Edwards. *il Elec R & W Elec'n 69:719 O 21 '16*
- Lighting building exteriors. J. R. Cravath. *il Elec W 67:438-9 F 19 '16*
- Lighting Cleveland museum of art with daylight lamps. *il plan Elec W 68:859-61 O 28 '16*
- Lighting the Cleveland museum of art. *il diags plan Elec R & W Elec'n 69:842-6, 885-7 N 11-18 '16*
- Modern electric searchlight projectors. J. H. Johnson. *il diags Engineer 122:227-9, 252-4, 294-6 S 15-22, O 6 '16*
- Modern projector equipment designed for flood-lighting. L. C. Porter. *il Elec W 67:166-7 Ja 15 '16*
- Movie engineering—the selection of the most efficient screen surface. L. W. McOmber. *il Elec W 67:1177 My 20 '16*
- New form of lamp for lantern and projection work. *il Illum Engr 9:32-3 Ja '16*
- Optic projection as a problem in illumination; with discussion. J. A. Orange. *diags Illum Eng Soc 11:768-93 no 8 '16*
- Photometric methods in connection with magic lantern and moving picture outfits and a simple method of studying the intrinsic brilliancy of projection sources. J. A. Orange. *diags Gen Elec R 19:404-5 My '16; Same. Sci Am S 82:303 N 4 '16*
- Predetermination of flood-lighting equipment. *il Elec R & W Elec'n 69:733 O 21 '16*
- Projecting lantern; with discussion. J. B. Taylor. *diags Illum Eng Soc 11:414-35 no 3 '16; Same. Sci Am S 82:12-15 J1 1 '16; Abstract. Illum Engr 9:250 Ag '16*
- Projector for flood-lighting large areas. *il Elec W 68:779 O 14 '16*
- Projectors and reflectors; abstract. H. T. Harrison. *il Elec W 67:1057-8 My 6 '16*
- Real estate flood-lighting that rented apartments and sold the buildings. *il Elec W 68:964 N 11 '16*
- Report of the committee on progress; flood lighting. *Illum Eng Soc 11:724-7 no 8 '16*
- Scintillator with 13-in. projectors for spectacular illumination. *il Elec W 67:1186 My 20 '16*
- Sunlight projector for flood lighting. *il Elec R & W Elec'n 68:168-9 Ja 22 '16*
- See also Lantern projection*
- Light signals**
- Daylight lamp signals on the Pennsylvania railroad. *diags Engineer 122:195-6 S 1 '16*
- Illumination in the navy. C. S. McDowell. *Illum Eng Soc 11:579-80 no 5 '16; Same cond. Illum Engr 9:283 S '16*
- Innovation in railway signaling. *il Sci Am 113:524 D 11 '15*
- Light signals on 440 miles of road. *il Ry Age 61:403-4 S 8 '16*
- Position light signals on the Pennsylvania. *il Ry Age 61:117-19 J1 21 '16*
- Position-light signals on the Pennsylvania R. R. *il diags Eng N 76:877-8 N 9 '16*
- Triangulation signal lamp of the U. S. coast and geodetic survey. E. G. Fischer. *il Sci Am 114:454+ Ap 29 '16; Same. Elec W 67:1118 My 13 '16*
- See also Beacons; Searchlights*
- Lighthouse service (United States)**
- United States lighthouse service; its history, growth and methods. *il diag map Sci Am S 82:344-7, 361-8 N 25-D 2 '16*
- Lighthouses**
- Economical precast stairway design developed for Panama canal lighthouse. W. F. Beyer. *il diag Eng Rec 74:139-30 J1 29 '16*
- Voyaging lighthouse. *il Sci Am 115:17 J1 1 '16*
- Lighthouses, Concrete**
- Building concrete lighthouse on Brandy-wine shoal. T. J. Rout. *il diags Eng N 75:928-31 My 18 '16*
- Lighting**
- Architectural and decorative aspects of lighting; abstract. G. Lowell. *il Elec R & W Elec'n 69:677 O 14 '16*
- Artificial illuminants for use in practical photography; with discussion. C. E. K. Mees. *Illum Eng Soc 10:947-62 no 9 '15*
- Artificial illumination of interiors as related to architecture and decoration. D. Crownfield. *Illum Eng Soc 11:683-92 no 7 '16*
- Artificial lighting of typical offices in state, war, and navy department building; with discussion. W. E. Chapman. *il Illum Eng Soc 10:651-8 no 8 '15*
- Aspects of the design and use of glass ware in relation to natural and artificial illumination. S. B. Langlands. *Illum Engr 9:118-22; Discussion. 123-34 Ap '16*
- Century of light. W. Clark. *J Fr Inst 182:511-24 O '16; Abstract. Elec W 68:868 O 28 '16*
- Color in lighting; abstract. M. Luckiesh. *il Elec R & W Elec'n 69:635 O 7 '16*
- Combination lighting of residences. J. P. Zingg. *Gas Age 38:628 D 1 '16*
- Effective lighting of bathrooms. *il Elec R & W Elec'n 68:290 F 12 '16*
- Efficient vision. *Sci Am 114:244 Mr 4 '16*
- Exterior illumination; abstract. L. Bell. *il Elec R & W Elec'n 69:676 O 14 '16*
- Factors in illuminating engineering. F. K. Richtmyer. *Sibley J 30:48-50, 95-9, 134-9 N 15-Ja '16*
- Fundamental principles of good lighting. P. G. Nutting. *Am Gas Light J 103:403-6 D 27 '15; Same abr. Sci Am S 82:254-6 O 14 '16*
- Fundamentals of lighting. M. Luckiesh. *Gen Elec R 19:785-7 S '16*
- Gas and electric lighting in the home. C. H. French and C. J. Van Gieson. *Am Gas Light J 105:234-5 O 9 '16*
- General principles of workroom lighting. A. L. Powell. *Gas Age 38:85-7 J1 15 '16*
- General report on glare. *Illum Eng Soc 10:987-99 no 9 '15*
- How to increase factory efficiency. O. M. Becker. *il Eng M 51:25-39, 177-93 Ap-May '16*
- Illuminating engineering in Germany; report of the annual meeting of the German illuminating engineering society. *il Elec W 67:721 Mr 25 '16*
- Illuminating engineering society; report of the committee on progress. *Illum Eng Soc 10:515-61 no 7 '15; Same. Illum Engr 8:409-14, 445-50; 9:105-6, 227-30, 253-60 O-N '15, Mr, J1-Ag '16; Same cond. Am Gas Light J 103:273-9 N 1 '15*
- Illuminating engineering society tenth anniversary. *il Elec W 67:413-15 F 19 '16*
- Illuminating engineering society 10th annual convention. *Illum Engr 9:305-8 O '16*

Lighting—Continued

- illumination and one year's accidents; with discussion. R. E. Simpson. *Illum Eng Soc* 10: 868-82 no 9 '15
- Illumination efficiencies as determined in an experimental room, with discussion. W. Harrison and E. A. Anderson. *il diags Illum Eng Soc* 11:67-91 no 1 '16
- Illumination of railroad yards. *diags Ry R* 59: 722-4 N 25 '16; Abstract with discussion. *Ry Age* 61:841 N 10 '16
- Illumination of the Panama-Pacific international exposition. W. D. Ryan. *il Illum Eng Soc* 11:629-39 no 6 '16
- Interim report of the committee on research. *Illum Engr* 9:172-7 My '16
- Interior illumination. *Illum Eng Soc* 11:36-9 no 1 '16
- Light and illumination. C. P. Steinmetz. *W Soc E J* 20:737-51 N '15; Same. *Sci Am S* 81: 194-5, 218-19 Mr 25-Apr 1 '16
- Light and lighting. E. P. Hyde. *Gen Elec R* 19:107-8 F '16
- Light-reflecting values of white and colored paints. H. A. Gardner. *il diag J Fr Inst* 181: 39-108 Ja '16; Same cond. *Am Gas Light J* 104:76-7 Ja 31 '16
- Lighting a small art gallery with gas-filled lamps. A. L. Abbott. *il diag Elec W* 67:710-11 Mr 25 '16
- Lighting in the army; with discussion. E. D. Ardery. *Illum Eng Soc* 11:659-68 no 7 '16
- Lighting of offices, stores and shop windows; abstract. N. Macbeth. *Elec R & W Elec'n* 69:718 O 21 '16
- Lighting of schools, auditoriums and libraries; abstract. F. A. Vaughn. *Elec R & W Elec'n* 69:762 O 28 '16
- Lighting of the home; abstract. H. W. Jordan. *Elec R & W Elec'n* 69:677 O 14 '16
- Lighting of yards, docks and other outside works; abstract. J. L. Minick. *Elec R & W Elec'n* 69:808 N 4 '16
- Lighting without fixtures. F. L. Godinez. *il Arch & Bldg* 48:160-1 O '16
- Method of studying the behavior of the eye under different conditions of illumination. F. K. Richtmyer and H. L. Howes. *Illum Eng Soc* 11:100-5; Discussion. 106-13 no 1 '16
- Natural and artificial illumination. P. M. Heldt. *diags Horseless Age* 37:234-5+ Mr 15 '16
- Present practise in the lighting of armories and gymnasiums with tungsten filament lamps; with discussion. A. L. Powell and A. B. Oday. *il Illum Eng Soc* 10:746-65 no 8 '15
- Principles of interior illumination; abstract. J. R. Cravath. *Elec R & W Elec'n* 69:634 O 7 '16
- Progress in illuminants and illuminating engineering. P. S. Millar. *Elec W* 67:27-9 Ja 1 '16
- Relation of lighting to architectural interiors. M. Brooks. *Illum Eng Soc* 11:539-46 no 5 '16
- Report of the committee on progress; with discussion. *Illum Eng Soc* 11:705-67 no 8 '16
- Results of lighting arrangements in mill rooms. *diags Textile World* 51:3897+ S 9 '16
- Retinal sensibilities related to illuminating engineering. P. G. Nutting. *Illum Eng Soc* 11: 1-16; Discussion. 17-21, 131-6 no 1 '16
- Scope of illuminating engineering. C. P. Steinmetz. *Illum Eng Soc* 11:625-8 no 6 '16
- Sheet glass in lighting. E. H. Bostock. *diags Illum Eng Soc* 10:pt 1a 1086-96 no 9 '15
- Trolley lighting scheme for the paint shop. G. R. W. Roberts. *diags Elec Ry J* 47:410 F 26 '16
- Welsbach lamp represents most radical advance in light production. C. P. Steinmetz. *Am Gas Light J* 105:193-4 S 25 '16

See also Automobiles—Lighting; Brightness; Car lighting; Electric lighting; Factories—Lighting; Gas; Gas lighting; Glare; Headlights; Hospitals—Lighting; Lamp shades; Light; Light, Colored; Light projection; Lighthouses; Locomotive headlights; Military lighting; Mine lighting; Petroleum; Photometry; Reflectors; Schoolhouses—Lighting; Searchlights; Ships—Lighting; Street lighting

Laws and regulations

- Code of lighting; factories, mills and other work places. *il plans Illum Eng Soc* 10:605-41 no 8 '15; Excerpt. *Am Gas Light J* 104: 187-8 Mr 20 '16; Excerpt. *Iron Tr R* 59: 132 J1 20 '16
- Establishing a basis for laws on lighting. C. E. Clewell. *Elec W* 66:1417-18 D 25 '15
- Lighting legislation. L. B. Marks. *Illum Eng Soc* 11:40-63 no 1 '16; Abstract. *Eng M* 51: 279 My '16; Discussion. *Illum Eng Soc* 11:64-6 no 1 '16
- Modern aspects of factory lighting and the new code. C. E. Clewell. *il Illum Eng Soc* 11:436-47 no 3 '16; Same cond. *Am Gas Light J* 104:186-7 Mr 20 '16; Discussion. *Illum Eng Soc* 11:448-52 no 3 '16
- New legislation. *Illum Eng Soc* 10:557-8 no 7 '15; Same. *Illum Engr* 9:258-9 Ag '16; Same cond. *Am Gas Light J* 103:279 N 1 '15
- Notes on the first report of the departmental home office committee on lighting in factories and workshops. L. Gaster. *Illum Engr* 8:485-96; Discussion. 497-506 D '15
- Principles in industrial lighting; with special reference to the first report of the departmental [home office] committee on lighting in factories and workshops. J. S. Dow. *il diags Illum Engr* 9:42-58; Discussion. 58-68 F '16
- Report of the committee on progress; legislation. *Illum Eng Soc* 11:758-60 no 8 '16
- Suggested code of lighting for factories, mills and other work places in the United States. *Illum Engr* 8:414-19, 451-5; 9:136-40 O-N '15, Ap '16

Standards

- Selection of a standard unit for commercial lighting. W. R. Moulton. *il Illum Eng Soc* 11:669-73; Discussion. 673-82 no 7 '16

See also Light—Standards

Study and teaching

- Course of lectures on illuminating engineering. C. E. Clewell. *Gen Elec R* 19:720-3 Ag '16
- Educational aspects of illuminating engineering; with courses of study. F. K. Richtmyer. *Illum Eng Soc* 11:851-72; Discussion. 872-81 no 8 '16
- Illuminating engineering lectures announced. *Elec R & W Elec'n* 69:95 J1 15 '16
- Lighting lecture course affords splendid opportunity for gas men. H. T. Owens. *Am Gas Light J* 105:23 J1 10 '16

Tables, calculations, etc.

- Experiments on the eye with inverted reflectors of different densities. C. E. Ferree and G. Rand. *il plan Illum Eng Soc* 10:pt 1a 1097-1130; Discussion. 1130-70 no 9 '15
- Explanation of a rational basis of comparing gas and electric lighting. G. C. Shadwell. *Am Gas Light J* 104:65-7 Ja 31 '16
- Illuminating units and calculations; abstract. A. S. McAllister. *Elec R & W Elec'n* 69:594 S 30 '16
- Illumination calculations for the electrical contractor. L. W. Moxey, jr. *Elec W* 66: 1425-7 D 25 '15
- Modification of Bloch's method of calculating illumination. R. F. Pierce. *diags Am Gas Light J* 105:161-2 S 11 '16
- Predetermination of flood-lighting equipment. *Elec R & W Elec'n* 69:733 O 21 '16
- Simple methods of computing light flux and horizontal illumination. W. E. Hodge and R. W. Chadbourne. *Illum Eng Soc* 11:22-8 no 1 '16; Same. *Am Gas Light J* 104:162-3 Mr 13 '16

Terminology

- 1915 report of committee on nomenclature and standards of illuminating engineering society. *Illum Eng Soc* 10:642-9 no 8 '15; Same. *Am Gas Light J* 104:55, 58 Ja 24 '16; Discussion. *Illum Eng Soc* 10:649-50 no 8 '15
- 1916 report of the committee on nomenclature and standards of the illuminating engineering society; with discussion. *Illum Eng Soc* 11:836-45 no 8 '16

Lighting, Military. See Military lighting**Lighting fixtures**

- Lighting club rooms. E. L. Godinez. *il Arch & Bldg* 47:456-7 D '15

Lighting fixtures—Continued

- Modern lighting accessories; abstract. W. F. Little. Elec R & W Elec'n 69:635 O 7 '16
 Old-time New York "brownstone front" converted into fixture salesrooms. il Elec W 66: 1428 D 25 '15
 Report of the committee on progress; globes, reflectors and fixtures. Illum Eng Soc 11: 744-8 no 8 '16
 Selection of a standard unit for commercial lighting. W. R. Moulton. il Illum Eng Soc 11:669-73; Discussion. 673-82 no 7 '16
See also Electric light fixtures; Gas fixtures; Street lighting fixtures

Lighting of factories. *See* Factories—Lighting

Lighting of streets. *See* Street lighting

Lighting plants, Municipal. *See* Electric plants, Municipal

Lightning

- Lightning; failure of insulation. F. W. Peek, jr. il diags Gen Elec R 19:586-94 J1 '16
 Lightning; its risks and how to avoid them. E. Thomson and others. il Gen Elec R 19: 166-72 Mr '16
 New explanation of sound phenomena. B. F. Miessner. il diag Sci Am S 82:212-14 S 30 '16
See also Lightning conductors; Lightning protection

Lightning arresters

- Condenser lightning arrester for electric railway protection. Q. A. Brackett. Elec Ry J 48:731-2 O 7 '16
 Cone; protective value. diag Gen Elec R 19: 1136-7 D '16
 Eliminating transmission line telephone troubles. E. P. Peck. il diags Elec W 68:515-18 S 9 '16
 Improved form of horn-gap lightning arrester. diag Elec R & W Elec'n 68:301-2 F 12 '16
 Installation and maintenance of car lightning arresters. R. H. Parsons. diags Elec Ry J 48: 502-3 S 16 '16
 Lightning arrester; four vs. three tank for grounded neutral three-phase. Gen Elec R 19:161 F '16
 Meter troubles from lightning. Elec R & W Elec'n 69:857 N 11 '16
 Procedure when charging lightning arresters. Elec W 68:768 O 14 '16
 Protection of railway signal circuits against lightning disturbances. E. K. Shelton. Gen Elec R 18:1127-8 D '15; Same. Ry R 58:183-4 Ja 29 '16
 Recent lightning arrester experience. B. L. F. Coffin. diags Elec Ry J 47:88-9 Ja 8 '16
 Short-circuiting device for lightning arrester; patent. diag Elec W 68:1100 D 2 '16
 Westinghouse type C R single-pole lightning arrester. il Elec W 68:145 J1 '16; Elec Ry J 48:112 J1 '15 '16; il Elec W 69: 215 J1 29 '16
 Westinghouse type K-3 lightning arrester. il Elec W 68:98 J1 8 '16; Elec R & W Elec'n 69: 130-1 J1 '15 '16; Elec Ry J 48:112 J1 '15 '16
 Westinghouse types A and A K electrolytic lightning arresters. il Elec W 68:193 J1 22 '16; Elec Ry J 48:240-1 Ag 5 '16; Elec R & W Elec'n 69:257-8 Ag 5 '16; Power 44:346-7 S 5 '16

See also Choke coils

Manufacture

- Electrical manufacturing operations. C. L. Lucas. il diag Mach 22:743-5 My '16

Lightning conductors

- Lightning protection for smoke-stacks. Power 43:784A My 30 '16; Same. Eng & Min J 101: 1032 Je 10 '16; Same. Coal Age 10:190 J1 29 '16
 Lightning seldom damages certain classes of buildings, but stacks should be protected. G. H. Armstrong. Am Gas Light J 105:sup18 J1 17 '16
 Protection of life and property against lightning. O. S. Peters. bibliog il U S Bur Stand Tech Pa 56:1-127 '15

Lightning protection

- Choke coils. il Elec W 68:538 S 9 '16; Elec R & W Elec'n 69:481 S 9 '16
 Evolution of drilling rigs; discussion. S. S. Wyer and others. Am Inst Min E Bul 113: 955-9 My '16

- Legal aspects of lightning protection. W. E. Mooney. Elec R & W Elec'n 69:367 Ag 26 '16

Lightning; its risks and how to avoid them. E. Thomson and others. il Gen Elec R 19: 166-72 Mr '16

Protection of life and property against lightning. O. S. Peters. bibliog il U S Bur Stand Tech Pa 56:1-127 '15; Excerpt (Protection of live stock; Place of greatest safety during thunderstorms). Sci Am S 81:99; 82:221 F 12, S 30 '16; Abstract. Elec W 67:555 Mr 4 '16

Studies in lightning protection, on 4000 volt circuits. D. W. Roper. maps Am Inst E E Pro 35: 817-55 Je '16; Excerpts. Elec W 68: 127-9 J1 '15 '16; Discussion. Am Inst E E Pro 35:1395-1409 S '16

Theory of parallel grounded wires and production of high frequencies in transmission lines. E. E. F. Creighton. diags Am Inst E E Pro 35:945-88 Je '16; Same cond. Elec W 68: 429-30 Ag 26 '16; Discussion. Am Inst E E Pro 35:1509-13 O '16

See also Lightning arresters; Lightning conductors

Lightning rods. *See* Lightning conductors

Lignite

- Economic methods of utilizing western lignites. E. J. Babcock. diags U S Bur Mines Bul 89:1-73 '16
 Utilization of Saskatchewan lignite. S. M. Darling. il Eng M 50:946 Mr '16
 Utilizing western lignites. E. J. Babcock. Sci Am S 81:311 My 13 '16

See also Briquets; Coal

Lignoceric acid

- Lignoceric acid from rotten oak wood. M. X. Sullivan. J Ind & Eng Chem 8:1027-8 N '16

Lilac

- Synthesis of certain substituted syringic acids. M. T. Bogert and E. Plaut. Am Chem Soc J 37:2723-33 D '15

Limbs, Artificial. *See* Artificial limbs

Lime

- Columbus waterworks to make its own lime. C. P. Hoover. il Munic J 39:945-6 D 23 '15
 Columbus waterworks will reclaim its spent lime. C. P. Hoover. Eng Rec 73:806 Je 17 '16
 Comparison of lime requirement methods. J. W. Ames and C. J. Schollenberger. J Ind & Eng Chem 8:243-6 Mr '16
 Cost of operating motors in lime plants and quarries. R. D. Donaldson. Elec W 68:326 Ag 12 '16
 Electrolytic sewage treatment little better than lime alone. E. Bartow. Eng Rec 74: 596-7 N 11 '16
 Experiments on the effect of hydrated lime on concrete. E. Ashton. Eng N 75:470-1 Mr 9 '16
 Hydrated lime addition to concrete for road work. N. G. Hough. Eng & Contr 45:225-6 Mr 8 '16
 Hydrated lime and faulty brick piers. B. Nagy. Eng Rec 74:539 O 28 '16
 Hydrated lime in concrete pavement construction. Eng & Contr 46:111 Ag 2 '16
 Hydrated lime in concrete road construction. il Good Roads n s 10:305-8 D 4 '15
 Hydrated lime in spouted concrete. N. G. Hough; W. H. Insley. Concrete Cem 7:216 D '15
 Improving concrete by the use of hydrated lime. Munic Eng 49:211-12 D '15
 Lime industry in 1915. G. F. Loughlin. Concrete 9:sup39-40 O '16
 Lime; magnesia ratio in soil amendments. W. Thomas and W. Frear. J Ind & Eng Chem 7:1042-4 D '15
 Lime recovery from spent causticizing mud. J. H. Payne. diag J Ind & Eng Chem 7: 1056-9 D '15
 Modern hydrated lime plant; Vermont marble co., Proctor, Vt. il Met & Chem Eng 15:50-1 J1 '16
 Tensile strength of Portland cement mortars, containing lime. M. O. Fuller. Concrete 9: 89-91 S '16
 Tests on hydrated lime addition to concrete for road work. E. Ashton. Eng & Contr 45: 206-7 Mr 1 '16

Lime—Continued

Use of hydrated lime in dry-tamp mixtures of concrete. Concrete 8:228-9 My '16

See also Cement; Concrete

Lime-sulphur solutions

Lime-solution for spraying fruit trees can be made economically from spent oxide. E. S. Jones. Am Gas Light J 105:263 O 23 '16

Analysis

Estimation of thiosulfate sulfur in lime-sulfur solutions by iodine titration. P. L. Blumenthal and S. D. Averitt. Am Chem Soc J 38:1701-4 S '16

New methods for the analysis of lime-sulfur solutions. R. M. Chapin. J Ind & Eng Chem 8:151-6, 339-41 F, Ap '16

Separation and estimation of polysulfides and thiosulfate in lime-sulfur solutions. S. D. Averitt. J Ind & Eng Chem 8:623-7 JI '16

Limestone

Coal, coke and limestone efficiency in blast furnace operation. B. F. Burman. Met & Chem Eng 14:256-8 Mr 1 '16

Importance of fineness of subdivision to the utility of crushed limestone as a soil amendment. W. Thomas and W. Frear. J Ind & Eng Chem 7:1041-2 D '15

Limestone deposits of West Virginia. G. P. Grimsley. Iron Tr R 59:330 Ag 17 '16

Proposed rapid method for the analysis of limestone for agricultural processes. A. S. Behrman. J Ind & Eng Chem 8:42-5 Ja '16

Quality of limestone for burning. Sci Am S 81:183 Mr 18 '16

Lincoln highway

Lincoln highway paved with wire-cut lug brick, monolithic method. Munic Eng 51:sup51-2 S '16

Progress of Lincoln highway. Eng N 75:635 Ap 6 '16

Seeing America and the Lincoln highway. H. B. Joy. Il Sci Am 114:12-13+ Ja 1 '16

Town forests and the Lincoln highway. H. A. Reynolds. Am For 22:174-5 Mr '16

Lincoln highway association

Annual meeting at Detroit, Mich., November 10. Munic J 39:895 D 9 '15

Lincoln memorial

Cylinder-pier foundations of the Lincoln memorial. J. A. O'Connor. Il diags Eng N 75:558-61 Mr 23 '16

Design and construction of the foundations for the Lincoln memorial. Washington, D. C. diags Eng & Contr 45:354-6 Ap 12 '16

Photographs, December, 1915. Am Inst Arch J 4:109-10 Mr '16

Linemen

Lineman's shoe made to withstand 20,000 volts. Il Elec W 67:392 F 12 '16

Linen

Development of an American linen industry. W. A. G. Clark. U S Bur For & Dom Com 122:1-23 '16

See also Textile industry and fabrics

Links

Link for lifting driving boxes. diags Mach 23:60 S '16

Linoleum

Cotton foundations for linoleum. Am Ind 17:37 Ag '16

Wood flour; manufacture and uses. F. W. Kressmann. Met & Chem Eng 14:373 Ap 1 '16; Same. Sci Am S 82:229 O 7 '16

Linotype

Early days of the Mergenthaler. B. B. Esau. Inland Ptr 57:524-7 JI '16

Electrically heated linotype metal pots. Il Elec W 67:1320 Je 3 '16

Erickson linotype slot-cutting machine—a new tabular system. Il Inland Ptr 56:692 F '16

Machine composition. E. M. Keating. See monthly numbers of the Inland printer
Master minds of type and press; typesetting machines. J. S. Ritenour. Inland Ptr 56:662-3 F '16

Operation of putting in a pot mouthpiece. Inland Ptr 57:522-3 JI '16

Removing a pot mouthpiece. E. M. Keating. Inland Ptr 58:232 N '16

Trouble with ejector. Inland Ptr 57:682-4 Ag '16

See also Typesetting machines

Linseed oil

Density and thermal expansion of linseed oil and turpentine. H. W. Bearce. U S Bur Stand Tech Pa 9:1-27 '12; Supplement (tables), '15

Effect of certain pigments on linseed oil. E. W. Boughton. U S Bur Stand Tech Pa 71:1-16 '16

Lipoids

Vitamines and lipoids in butter and margarine. J. De Ruiter. J Ind & Eng Chem 8:1020-1 N '16

Liquid air

Liquid air as an explosive; abstracts. M. Przyborski. Am Soc M E J 37:341-2 Je '15; Coal Age 8:843 N 20 '15

Refrigeration in France. L. Marchis. Met & Chem Eng 14:187-91 F 15 '16

Liquid chlorine. See Chlorine, Liquid

Liquid fire

Throwing liquid fire. Il Sci Am S 81:405 Je 24 '16

Liquid fuel

Carburetion with different grades of fuel. E. N. Percy. Power 44:560-2 O 17 '16

Fuel oils from coal. H. Moore. Engineer 121:256 Mr 24 '16

Internal-combustion motor for traction engines. A. A. Potter and W. A. Buck. Am Soc M E J 38:886-8 N '16

See also Automobile engines—Fuel; Benzol; Gas and oil engines—Fuel; Gasoline; Gasoline, Substitutes for; Kerosene; Oil burners; Petroleum as fuel

Liquid jets

Liquid jets for absorbing gases in liquids and the flotation process. Met & Chem Eng 14:674; 15:58 Je 15, JI 15 '16

Universal flotation theory. C. T. Durell. Met & Chem Eng 14:253 Mr 1 '16

Liquid meters

Liquid measuring device. Il Sci Am 114:668 Je 24 '16

Vaughan flow meter for liquids. diags Met & Chem Eng 15:494 O 15 '16; Eng & Min J 102:941 N 25 '16

Liquid oxygen. See Oxygen, Liquid

Liquids

Apparatus for the determination of the surface tension at the interface between two liquids. W. D. Harkins and E. S. Humphery. diags Am Chem Soc J 38:236-41 F '16

Constitution of liquids with especial reference to surface tension phenomena. I. Langmuir. Met & Chem Eng 15:468-70 O 15 '16

Drop weight method for the determination of surface tension. W. D. Harkins and E. C. Humphery. Am Chem Soc J 38:228-36 F '16

Method of drop measuring liquids and suspensions. R. Donald. Sci Am S 81:399-400 Je 17 '16

Properties of mixed liquids. J. L. R. Morgan and C. E. Davis. Am Chem Soc J 38:555-68, 844-57 Mr-Apr '16

Solubilities of liquids in liquids; the partition of the lower alcohols between water and cottonseed oil. B. B. Wroth and E. E. Reid. Am Chem Soc J 38:2316-25 N '16

Surface-tension at the interface between two liquids. W. D. Harkins and E. C. Humphery. Sci Am S 81:235 Ap 8 '16

Surface tension at the interface between two liquids, and the effect of acids, salts and bases upon the interfacial tension. W. D. Harkins and E. C. Humphery. Am Chem Soc J 38:242-6 F '16

Warring on waste; reducing losses of liquids. G. A. Townsend and F. H. LeMont. Il Factory 17:13-17 JI '16

See also Boiling points; Capillarity; Drops; Emulsions; Hydrostatics; Liquid air; Solution (chemistry); Viscosity

Gaging

See Gaging

Sampling

Liquid sampling specifications. Am Gas Light J 103:391 D 20 '15

Liquids, Viscous

Flow of viscous liquids through pipes. W. K. Lewis. *diag J Ind & Eng Chem* 8:627-32 J1 '16; Abstract. *Am Soc M E J* 38:668-9 Ag '16

Liquor problem. See Prohibition**Liquors**

See also Alcohol; Wine

Lithium

Separation of lithium from the other alkali metals. S. Palkin. *Am Chem Soc J* 38:2326-32 N '16

Lithography

Architectural draughtsmen; Eugene Isabey and his lithographs. H. Winslow. *il Am Inst Arch J* 4:139-50 Ap '16
Field lithography permits rapid production of maps. D. A. Tomlinson. *Eng Rec* 73:42-3 Ja 8 '16

See also Engraving

Little Falls, New Jersey**Water supply**

Situation at Little Falls; with discussion. F. W. Green. *Am Water Works Assn J* 3: 170-4 Mr '16

Live stock

Investigation of live-stock conditions and losses in the Selby smoke zone. C. M. Harding and K. F. Meyer. *il U S Bur Mines Bul* 98:474-502 '15

Mortality of draft animals in Great Britain. *Coal Age* 9:568 Ap 1 '16

Protection of live stock in fields. O. S. Peters. *U S Bur Stand Tech Pa* 56:98-100 '15; Same. *Sci Am S* 81:99 F 12 '16

See also Feeding and feeding stuffs; Sheep; Swine

Judging

Stock judging pavilion at University of Illinois. *il plans Brickb* 25:89-90 Ap '16

Transportation

Advances in eastern live stock rates. *Ry R* 57: 799-800 D 18 '15

Liverpool, England**Railroads**

Liverpool's overhead and underground railways. *diag Engineer* 120:552 D 10 '15

Load (mechanics)

Are eccentric details weak? E. Godfrey. *Eng N* 75:186-7 Ja 27 '16

Beams without lateral support. R. Fleming. *Eng N* 75:648-9 Ap 6 '16

Beams without lateral support; relations of formulas. H. Kercher. *Eng N* 75:860-1 My 4 '16

Cutting a pier in two to make it stronger. S. F. Holtzman; G. M. Williams. *diags Eng N* 75:380-1 F 24 '16

Design and construction of forms for concrete work. R. A. Sherwin. *Eng & Contr* 45:209-10, 231-4 Mr 1-8 '16

Eccentric loading on columns. *diag Eng Rec* 74:419, 510 S 30, O 21 '16

Eccentric loading on columns discussed, accompanied by formulas and tables. R. Fleming. *diag Eng Rec* 74:296-7 S 2 '16

Eccentric loading problems. G. Paaswell; D. Gutman. *Eng N* 74:1238-9 D 23 '15

High unit pressures found in experiments on distribution of vertical loading through sand. M. L. Enger. *il diags Eng Rec* 73:106-8 Ja 22 '16; Same. *Eng & Contr* 45:53-6 Ja 19 '16; Same. *Ry R* 58:129-32 Ja 22 '16; Same cond. *Ry Age* 60:321-3 F 18 '16; Abstract. *Am Soc M E J* 38:267-8 Mr '16; Discussion. R. L. Sackett; M. L. Enger. *Eng Rec* 73:398 Mr 18 '16

Is a part stronger than the whole? G. E. Strehan. *diags Eng N* 75:284-5 F 10 '16

Large steel-frame ship shed contains special trusses designed for vertical and horizontal crane loading. *il diags plan Eng Rec* 74:550-2 N 4 '16

Loads from moving crowds. *Eng N* 75:756-7 Ap 20 '16

New formulas and diagrams give deflections of beams under any loading. C. A. Ellis. *Eng Rec* 73:84-5 Ja 15 '16

Results of some tests to determine the distribution of vertical pressure through sand. R. B. Fehr and C. R. Thomas. *diags Eng & Contr* 45:306-9 Mr 29 '16

Soil-bearing tests determined loading on Chicago track-elevation work. R. H. Ford. *il Eng Rec* 74:652-3 N 25 '16

Subway columns and girders designed to support future high office building. *diags Eng Rec* 74:113-14 J1 22 '16

Tables facilitate accuracy in timber beam design. R. C. Hardman. *Eng Rec* 73:138-9 Ja 29 '16

Taking care of eccentric load from balcony brackets. *diag Eng N* 76:763 O 19 '16

Tests of hollow-tile, flat-arch floor slabs show effects of concentrated loads. C. T. Morris. *il Eng Rec* 73:584-5 Ap 29 '16

Tests of large bridge struts reveal new facts. J. H. Griffith and J. G. Bragg. *il Eng N* 76: 49-52 J1 13 '16

Theoretical determination of bending moment and deflection in columns. M. Gordon; H. Epstein; D. Kaplan. *Eng & Contr* 45:226-7 Mr 8 '16

Theoretical determination of the bending moment and deflection in columns subjected to combined bending and compression. D. Kaplan. *diags Eng & Contr* 45:101-4 F 2 '16

Whirling speed of shafts. W. M. Wallace. *Engineer* 122:113-15, 184, 203-4 Ag 11, S 1-8 '16

See also Bridges—Load; Strains and stresses

Load curves. See Electric plants—Load curves

Load dispatching. See Electric plants (central stations)—Management

Loading and unloading

Car unloading device. *Eng & Contr* 46:351 O 18 '16

Coal unloading machine. *il diag Iron Age* 98: 934-5 O 26 '16

Conveyors for discharging bulk cargoes from steamers. *il plan Engineer* 120:622 D 31 '15

Device for loading and unloading automobiles from end door box cars. *il Eng & Contr* 46: 436 N 15 '16

Economics of material handling in manufacturing plants. R. Trautschold. *il diags Ind Management* 52:372-6 D '16

Galion Eclipse portable unloader. *il diag Ry R* 58:582-3 Ap 22 '16

Incline and platform facilitate rapid unloading of trucks. *il Eng & Contr* 46:460 N 22 '16

Lee team track loader. *il Munic J* 41:53 J1 13 '16

Lightning loader skip economy. *il Munic Eng* 51:204-5 N '16

Ore unloading on the Great Lakes. J. H. Stratton. *il Sci Am S* 81:104-7 F 12 '16

Portable loading and unloading machines for marine terminals. H. Frost. *il diags Int Marine Eng* 21:452-4 O '16

Power scraper shovel for ore boats. *il Iron Age* 96:1115-16 N 11 '15; *Metal Work* 84:794 D 24 '15; *Int Marine Eng* 21:45-6 Ja '16; *Sci Am* 114:279 Mr 11 '16; *Engineer* 122:376-7 O 27 '16

Rapid coal unloader. *il Met & Chem Eng* 15: 604-5 N 15 '16

Unloading new cars in five minutes. S. Potter. *il Elec Ry J* 48:236-7 Ag 5 '16

Unloading river barges by a series of chutes. *il Eng N* 74:1228-9 D 23 '15

Use of conveying machinery for handling bulk freight on board ship. W. B. Greene. *il diags Int Marine Eng* 21:502-4 N '16

Useful winch attachment. *il Sci Am* 114:106 Ja 22 '16

Wagon-loader with belt conveyor. *il Eng N* 76:336 Ag 17 '16

See also Chutes; Conveying machinery; Dumping appliances; Freight handling; Mechanical handling

Loading of cars. See Freight car service—Car load

Lockport, N. Y.**Bridges**

Three-hinged arch girders with vertical ends provide barge canal clearance. *il diags Eng Rec* 72:702-3 D 4 '15

Locks (canals and rivers)

Cantilever forms save tie rods on thick lock walls. *il Eng Rec* 74:511-12 O 21 '16

Locks (canals and rivers)—Continued

- Cleaning out lock gate trackways at the Charles river dam. E. C. Sherman. *il Boston Soc C E J* 3:121-2 Mr '16
- Corrosion of submerged metal at the Panama canal. G. W. Goethals. *Eng N* 76:1005 N 23 '16
- Electricity on the New York state barge canal. E. W. Pilgrim. *il diags map Gen Elec R* 19:24-42 Ja '16
- Guarding steel lock gates from galvanic action. E. C. Sherman. *il Eng N* 75:210 F 3 '16
- How the New York barge canal will be operated. W. H. Yates. *il diags plan map Eng N* 75:97-105 Ja 20 '16
- Large modern lock gates. M. Elliott. *il diags W Soc E J* 21:601-24; Discussion. 624-37 O '16
- New York barge canal is in partial operation. *il Eng Rec* 74:521-2 O 28 '16
- Power equipment for the Barge canal system of the state of New York. C. H. MacCulloch. *il Eng & Contr* 46:241-5 S 13 '16
- Steel cofferdam of pocket type successful for lock on Cape Fear river. *il diag Eng Rec* 74:325-6 S 9 '16
- Surges for 16 miles from Pedro Miguel lock-gates. R. Z. Kirkpatrick. *map Eng Rec* 74:591 N 11 '16
- Three types of lock-gate design. M. Elliott. *Eng Rec* 74:46-7 J1 8 '16
- Two Ohio river dams built in two seasons. *il plans Eng Rec* 73:360-3 Mr 11 '16

See also Panama canal—Locks

Locomobiles

- Longitudinal section of the Buckeye-mobile. R. L. Streeter. *Ind Management* 52:205 N '16

Locomotive boilermakers

- Training boilermaker apprentices. *il Ry Mech Eng* 90:415-17 Ag '16

Locomotive boilers

- Abstract of annual report of the chief inspector of locomotive boilers. F. McManamy. *Ry Age* 60:24-5 Ja 7 '16; Same. *Ry Mech Eng* 90:41-3 Ja '16; Same cond. *Ry R* 58:330-1 Mr 4 '16
- Advantages of superheaters, brick arches, and other modern appliances on large locomotives, especially those of the Mallet type. *Am Soc M E J* 38:1041-2 D '16
- Better locomotive boiler inspection; symposium. *Ry Mech Eng* 90:93-5 F '16
- Boiler expansion experiments. D. R. Mac Bain. *il diags Ry Mech Eng* 90:496-9 O '16; Abstract. *Am Soc M E J* 38:943-4 N '16
- Boiler inspector and his job; prize article and one other from boiler inspection competition. T. T. Ryan; W. J. Gillespie. *Ry Age* (Mech ed) 89:635-8 D '15
- Button-head radial stay. J. Smith. *diags Ry Mech Eng* 90:96 F '16
- Design and maintenance of locomotive boilers; report of committee of American railway master mechanics' association. *Ry R* 58:930-2 Je 24 '16
- Fusible plug. *Ry R* 59:106-7 J1 22 '16
- Locomotive boiler efficiency. J. T. Anthony. *Ry Mech Eng* 90:443-8, 505-8 S-O '16
- Locomotive fuel economy and boiler design. J. T. Anthony. *Ry Age* 61:695-700 O 20 '16; Same cond. *Ry R* 59:653-8 N 11 '16
- Maintenance of the locomotive boiler. A. R. Hodges. *Ry Mech Eng* 90:257-8 My '16
- Novel method of handling boilers to prevent corrosion and scale. A. H. Babcock. *Ry R* 59:126-8 J1 22 '16
- Removing air pockets from reservoirs. W. H. Hauser. *diag Ry Mech Eng* 90:372 J1 '16

See also Locomotive fireboxes; Locomotives

Locomotive brakes

- Moisture in locomotive brake system. M. Purcell. *Ry Mech Eng* 90:303 Je '16; Same abr. *Ry Age* 60:1041-2 My 12 '16

Locomotive cabs

- Clear vision cab window. *diags Ry Age* 61:297 Ag 18 '16; Same. *Ry Mech Eng* 90:603 N '16

Locomotive engineers

- How best to educate the road foreman, the engineer and the fireman. W. H. Corbett. *Ry R* 59:123-4 J1 22 '16

Locomotive fireboxes

- Basic vs. acid open hearth steel for locomotive fireboxes. *Ry R* 58:339-40 Ja 10 '16
- Cast steel mud-rings for locomotive fireboxes. *diag Ry R* 59:15 J1 1 '16
- Firebox efficiency. J. T. Anthony. *Ry R* 59:581-5 O 28 '16
- Locomotive firebox proportions. L. H. Fry. *Ry Mech Eng* 90:392-3 Ag '16

Locomotive firemen

- How best to educate the road foreman, the engineer and the fireman. W. H. Corbett. *Ry R* 59:123-4 J1 22 '16
- Human fireman. R. Bradley. *Ry Age* 60:1126-7 My 26 '16; Same. *Ry Mech Eng* 90:286-7 Je '16; Same cond. *Ry R* 59:55-3 J1 8 '16

Locomotive headlights

- Arc and incandescent headlights. P. S. Bailey. *il Coal Age* 9:753-7 Ap 29 '16
- Electric headlight case. *Ry Age* 59:1138; 61:999-1000 D 17 '15, D 1 '16
- Electric headlight; discussion. *Ry Age* 61:844-5 N 10 '16
- Electric headlight rule; the re-opened hearing by the Interstate commerce commission. *Ry R* 59:616-18, 664-9 N 4-11 '16
- Electric headlights for mine locomotives. *il Eng & Min J* 102:128 J1 15 '16
- High-power incandescent headlight. *Elec Ry J* 48:323 Ag 19 '16
- Incandescent electric headlight equipment. *il diags Ry Age* 60:299-300 F 18 '16; *Ry Mech Eng* 90:101-3 F '16
- Incandescent headlights and headlight laws. *Ry Mech Eng* 90:119-20 Mr '16
- Incandescent headlights for street railway and locomotive service. P. S. Bailey. *il Gen Elec R* 19:643-5 J1 '16
- I. C. C. reopens headlight case. *Ry Age* 61:814-15 N 3 '16
- Meeting the federal headlight requirements. L. C. Porter. *il Ry Age* 61:191-3 Ag 4 '16
- Southern Pacific six-volt electric headlight equipment. A. H. Babcock. *diags Ry Age* (Mech ed) 89:613-14 D '15; Same. *Ry Age* 59:1082-3 D 10 '15
- Why electric headlights are ordered by the Interstate commerce commission. *Ry R* 59:19-21 J1 1 '16

Bibliography

- List of publications on headlight subjects. L. C. Porter. *Ry Age* 61:193-4 Ag 4 '16

Locomotive laboratories. *See* Locomotives—Testing**Locomotive shops**

- Comparative locomotive shop ratios. H. Gardner. *Ry Mech Eng* 90:38-9 Ja '16
- Locomotive repair indicator. *il Ry Mech Eng* 90:98-9 F '16
- Locomotive repair shops and classification yard. Lehigh & New England R. R., Pen Argyl, Pa. *il plan Ry R* 58:809-11 Je 10 '16
- Rack for barring up shoes, wedges and binders. C. W. Schane. *diags Ry R* 58:203 F 5 '16
- Unwheeling Mallet locomotives. *il Ry Mech Eng* 90:48 Ja '16; *Ry R* 59:190-1 Ag 5 '16

See also Locomotives—Repair

Locomotive stokers. *See* Stokers, Mechanical**Locomotive terminals**

- Efficient enginehouse organization. E. W. Smith. *Ry Mech Eng* 90:143-6 Mr '16
- Engine terminals. G. Twist. *Ry Mech Eng* 90:252-3 My '16
- Enginehouse methods. J. S. Breyer. *Ry Mech Eng* 90:461-2 S '16
- Enginehouse organization. C. C. Leech. *Ry Mech Eng* 90:469 S '16
- Enginehouse practice. J. F. Donellon. *Ry Mech Eng* 90:595-6 N '16
- Enginehouse practice at Macon, Ga. C. L. Dickert. *Ry Mech Eng* 90:319-20 Je '16
- Getting results from a big engine terminal. G. Cook. *Ry Mech Eng* 90:372 J1 '16
- Getting results in an enginehouse. T. F. Ryan. *Ry Mech Eng* 90:424 Ag '16
- Handling a big engine terminal. H. D. Wolcomb. *Ry Mech Eng* 90:417-18 Ag '16
- Handling a big engine terminal. P. A. Schenck. *Ry Mech Eng* 90:251-2 My '16
- Importance of the roundhouse foreman. G. C. Christy. *Ry Mech Eng* 90:421-2 Ag '16

Locomotive terminals—Continued

Modern engine house facilities and methods. J. H. DeSalis. Ry R 58:314-15 F 26 '16

New Lehigh Valley roundhouse, Sayre, Pa. il map Ry Age 60:841-2 Ap 14 '16; Same cond. Ry R 58:325 Mr 4 '16

Operating a large engine terminal. F. W. Schultz. Ry Mech Eng 90:205-6 Ap '16

Operation of a large engine terminal. T. H. Adams. Ry Mech Eng 90:368 Jl '16

Points in enginehouse management. C. E. Kelly. Ry Mech Eng 90:426 Ag '16

See also Roundhouses

Locomotive tires. See Tires (locomotive)**Locomotive trucks**

Economy pony and trailing trucks for locomotives. diags Ry R 58:747-8 My 27 '16

Locomotives

Alloy steel in locomotive design. L. R. Pomeroy. diag Ry R 59:6 Jl 1 '16

American built locomotives abroad. il Sci Am S 81:168-9 Mr 11 '16

Assignment of power; report of committee of Traveling engineers' association. Ry Age 61:799-801 N 3 '16; Ry R 59:629-30 N 4 '16

Baltimore & Ohio road Mallets. il diags Ry Mech Eng 90:389-92 Ag '16; Same cond. Ry R 59:50-1 Jl 8 '16

Best design and materials for pistons, valves, rings and bushings; report of committee of American railway master mechanics' association. Ry R 58:934-5 Je 24 '16

British-built engines for the French state railway. il diags Engineer 122:96-7 Ag 4 '16

British built passenger locomotives for French state railways. diags Engineer 122:276-8 S 29 '16

British express locomotives. E. C. Poultney. il Ry Mech Eng 90:552-8 N '16

Consolidation locomotives for the Lake Superior & Ishpeming Ry. il Ry R 58:665-6 My 13 '16

Deficiency of equipment in 1915. Ry Age 61:221-2 Ag 11 '16

Efficiency. H. M. Hobart. Gen Elec R 19:276-9 Ap '16

Eight-wheel English locomotive. il diags Ry Mech Eng 90:395-8 Ag '16

Eight-wheels coupled engines on British railways. E. L. Ahrons. Engineer 120:449-50 N 12 '15

1857 locomotive parked. il Eng N 76:101 Jl 20 '16

Equalization of long locomotives. diags Ry R 59:12-15 Jl 1 '16

Examples of recent locomotives of the mountain, Pacific, ten-wheel, mogul and switching types, arranged in order of total weight; tabulation. Ry Mech Eng 90:346 Jl '16

Examples of recent switching locomotives of the 0-6-0 and 0-8-0 types. Ry Mech Eng 90:20 Ja '16

Exhibit of a powdered fuel burning locomotive. il Ry R 58:819 Je 10 '16

Express locomotives in France. E. Sauvage. il Ry Mech Eng 90:231-4 My '16

Four-cylinder Atlantic type locomotive, Great Northern of England. diags Ry Mech Eng 90:502-4 O '16

Future of the steam locomotive. J. E. Muhlfield. Ry R 58:40-2 Ja 8 '16; Same. Sci Am S 82:94-5 Ag 5 '16

Garratt type locomotives for Brazil. il Ry Mech Eng 90:118-9 S '16

Geared shunting locomotives, Kansas City Southern railway. il diag Engineer 120:511-12 N 26 '15

Heavy freight locomotives, Duluth Missabe & Northern Ry. il Ry R 59:175-6 O 7 '16

Heavy Pacific type locomotive for the Lackawanna. il diags Ry Age 59:1155-7 D 21 '15

Improved pipe clamping and bracing arrangements. A. C. Mason. diags Ry R 59:37 Jl 8 '16

International railway fuel association committee report on front ends, grates and ash pans. Ry R 58:726-8 My 20 '16; Abstract. Ry Age 60:1127-8 My 26 '16; Abstract. Ry Mech Eng 90:282-3 Je '16

Large Consolidation locomotive designed for use in ore traffic on the Lake Superior & Ishpeming. il diag Ry Mech Eng 90:343-5 Jl '16; Same. Ry Age 60:1327-9 Je 16 '16

Locomotive and the revolutionist. Engineer 120:63-4 Jl 16 '15; Same. Sci Am S 81:123 F 19 '16

Locomotives recently built for export. il Ry R 59:318-20 S 2 '16

Mallet articulated compound locomotives for the Nashville Chattanooga & St. Louis Ry. il diags Ry R 58:630-3 My 6 '16; Same. Ry Age 60:985-8 My 5 '16

Mallet compound locomotives for the South African railways. F. C. Coleman. il Ry R 58:195 F 5 '16

Mallet compound locomotives for the Western Maryland Ry. il Ry R 59:140-1 Ji 29 '16

Mallet locomotives for use in road service. il diags Ry Age 61:145-7 Ji 28 '16

Mikado type locomotives for the Atchison Topeka & Santa Fe Ry. il diags Ry R 58:775-7 Je 3 '16

Mikado vs. the Consolidation. N. D. Ballantine. Ry Age (Alec ed) 89:615-17 D '15

Norfolk & Western mountain type locomotives. diags Ry Age 60:799-801; 61:362 Ap 7, S 1 '16

Operation of parallel and radial axles of a locomotive by a single set of cylinders. A. Mallet. diags Am Soc M E J 38:125-9 F '16; Abstract. Ry Mech Eng 90:15-17 Ja '16; Conclusions. Ry R 57:836-7 D 25 '15; Discussion. Am Soc M E J 38:129-34 F '16; Excerpts of discussion. Ry Age 60:19-20 Ja 7 '16; Ry Mech Eng 90:17-19 Ja '16

Pacific type locomotives for the Delaware, Lackawanna & Western R. R. il diags Ry R 58:43-5 Ja 8 '16

Pacific type locomotives for the Reading. il diags Ry Age 61:107-9 Ji 21 '16

Pacific type locomotives, Richmond Fredericksburg & Potomac R. R. il diags Ry R 57:813-15 D 25 '15; Ry Age 59:1129-31 D 17 '15

Pioneer locomotive poses for the motion picture camera. il Sci Am 115:75 Ji 22 '16

Railway clubs and young men. G. M. Basford. Ry R 59:457-60 S 30 '16; Same abr. Ry Age 61:539-41 S 29 '16; Same abr. Ry Mech Eng 90:509-10 O '16; Abstract. Am Soc M E J 38:937 N '16

Recent Baldwin locomotives for export. il Ry Age 61:465-6 S 15 '16

Recent examples of 2-10-2 type locomotives. il diags Ry Age 60:887-91 Ap 21 '16; Same. Ry Mech Eng 90:223-6 My '16

Recently constructed export locomotives. il Ry R 57:713-16 D 4 '15

Reduction of dynamic augment. Ry R 58:634-6 My 6 '16

Ritchie locomotive. Engineer 121:31 Ja 14 '16

Santa Fe type locomotive for the Texas & Pacific Ry. il diags Ry R 58:908-10 Je 24 '16

Santa Fe type locomotives for the Erie railroad. il diags Ry R 58:813-18 Je 10 '16; Abstract. Am Soc M E J 38:675-6 Ag '16

Southern steam tender locomotive. H. G. Boultell. diag Ry Age (Mech ed) 89:613 D '15

Standard heavy goods engine, N. S. W. government railways. plans (supp) Engineer 121:10 Ja 7 '16

Switch engines for the Louisville & Nashville. diag Ry Age 61:998-9 D 1 '16

Traveling engineers' association 24th annual convention. Ry R 59:588-92, 626-30 O 28-N 4 '16; Ry Age 61:795-801 N 3 '16; Ry Mech Eng 90:561-5 N '16

Triplex articulated locomotives for the Erie. il Ry Age 61:74-5 Jl 14 '16; Ry R 59:107-11 Ji 22 '16

Two powerful 4-6-2 locomotives. il diags Ry Mech Eng 90:4-9 Ja '16

Uniflow cylinder for locomotives. diags Ry Age (Mech ed) 89:612-13 D '15

See also Electric locomotives; Locomotive boilers; Locomotive cabs; Locomotive fire-boxes; Locomotive headlights; Locomotive terminals; Railroads; Roundhouses; Steam engines; Tires (locomotive); Tractors; Turntables

Axles

Diameter of driving axle journals. L. R. Pomeroy. diag Ry Mech Eng 90:171-4 Ap '16

Economy lateral motion driving axle arrangement. il diags Ry R 58:881-2 Je 17 '16

Locomotives—Axles—Continued

Oil versus water for quenching forgings. C. D. Young. *il* *diags* Iron Age 97:1546-7 Je 29 '16; Same. Iron Tr R 58:1424-6 Je 29 '16; Same cond. Ry Age 61:17-18 Jl 7 '16; Same cond. Ry Mech Eng 90:398-9 Ag '16; Abstract. Eng N 76:88 Jl 13 '16

Cost of maintenance and operation

Effect of lubrication on cost of operation. A. G. Kinyon. Ry R 59:59-1 O 28 '16
Trend of tractive power and results on fuel costs; ten years' record 1904-1914. Ry R 58:45-6 Ap 1 '16
What effect does the mechanical placing of fuel in fireboxes have on the cost of operation? committee report with discussion. Ry R 59:588-90 O 28 '16; Same cond. Ry Age 61:795-7 N 3 '16; Same cond. Ry Mech Eng 90:581-4 N '16; Abstract. Am Soc M E J 38:1041 D '16

Counterbalancing

Counter-balance of main drivers on locomotives equipped with outside valve gears. F. C. Vanervort, jr. *diags* Ry R 58:476-7 Ap 1 '16
Locomotive counterbalances; with discussion. H. E. Avastrom. *il* *diags* Ry Mech Eng 90:528-30 O '16; Same cond. Ry Age 61:407-8 S 8 '16
Rules and instructions governing the application of counterbalance to locomotives. Southern Pacific co. *diags* Ry R 59:613-14 N 4 '16

Crankpins

Design of hollow crank pins. C. W. Benica. *diag* Ry Mech Eng 90:66-7 F '16

Driving boxes

Casting brass liners in locomotive driving boxes. F. West. *il* Foundry 44:184 My '16
Driving box repairs. R. L. Preston. *il* Ry Mech Eng 90:100 F '16
Fitting driving box brasses. V. T. Kropidowski. *diags* Ry Mech Eng 90:360-1 Jl '16
Grease lubrication of locomotive driving boxes. G. J. Burns. Ry Mech Eng 90:234 My '16
Langton driving box brass. *il* *diags* Ry Age 60:850 Ap 14 '16; Same. Ry Mech Eng 90:261-2 My '16
Langton sectional driving box brass. *diags* Ry Age 60:1333 Je 16 '16
Reclaiming driving boxes. R. P. Petermann. *diag* Ry Mech Eng 90:206 Ap '16

Equipment and supplies

Road tests of exhaust nozzles. E. S. Barnum. *diags* Ry Mech Eng 90:67-8 F '16
Sentinel low water alarm. *diag* Ry Age 60:804 Ap 7 '16
Smith locomotive adjustable hub plate. *diags* Ry R 58:375 Mr 11 '16
Wind-deflecting mask for the use of locomotive engineers. *il* Sci Am 114:85 Ja 15 '16
Woodward throttle. *diags* Ry Mech Eng 90:48-9 Ja '16

See also Locomotive boilers; Locomotive headlights; Stokers; Mechanical; Tires (locomotive)

Failures

Analyzing engine failures. A. Park. Ry Mech Eng 90:366-7 Jl '16

Frames

Producing large cast steel locomotive frames. *il* plan Foundry 44:295-301 Ag '16

Fuel

Care of locomotives with relation to fuel economy; abstracts. A. N. Willis. Ry Age 60:1123-4 My 26 '16; Ry Mech Eng 90:281-2 Je '16; Ry R 59:178-81 Ag 5 '16
Coal-dust locomotive. H. T. Walker. *il* Sci Am 114:322 Mr 25 '16
Compounding and superheating on French railroads; abstract. L. Baclé. Am Soc M E J 38:763 S '16
Division transportation official and fuel economy. W. H. Averill. Ry R 59:187-90 Ag 5 '16
Fuel economy. H. C. Woodbridge. Ry Mech Eng 90:71-2 F '16; Same cond. Ry R 58:706-8 My 20 '16

Fuel economy on the Rock Island. W. J. Tolbert. Ry Mech Eng 90:180 Ap '16

Fuel oil installations and equipment. Florida East Coast Ry. *diags* plan Ry R 58:903-6 Je 24 '16; Abstract. Am Soc M E J 38:666 Ag '16

How burning powdered coal may dispel the city smoke nuisance. Eng & Contr 46:168 Ag 23 '16

Locomotive coal consumption. L. W. Wallace. Ry Age (Mech ed) 89:617-18 D '15

Locomotive water and coal consumption. H. A. Huston. Ry Mech Eng 90:69-71 F '16

Machine that records the volume of coal used by locomotive firemen. *il* Sci Am 115:306 S 30 '16

North Western pulverized coal locomotive. *il* Ry Age 61:227-30 Ag 11 '16

Operating conditions and fuel consumption. J. G. Sullivan. Ry Age 61:363-4 S 1 '16

Peat burning furnace for locomotives; abstract. *diags* Am Soc M E J 38:354 Ap '16

Powdered coal as fuel. J. Harrington. Power 44:77 Jl 11 '16

Powdered coal in engine service. C. W. Corning. *il* Ry Mech Eng 90:565-8 N '16

Powdered fuel; report of committee of American railway master mechanics' association. Ry R 58:935-6 Je 24 '16

Powdered fuel; report of committee of International railway fuel association. Ry Age 60:1081-3 My 19 '16; Same. Ry R 58:720-3 My 20 '16; Same. Ry Mech Eng 90:279-81 Je '16; Same cond. Am Soc M E J 38:728 O '16

Preparation of stoker coal. *diag* Ry Age 60:955-6 Ap 28 '16

Pulverized fuel for locomotives. J. E. Muhlfield. *il* *diag* Ry R 58:299-303 F 26 '16; Same, with discussion. Ry Mech Eng 90:114-18 Mr '16; Same cond. Ry Age 60:349-53 F 25 '16; Abstract. Am Soc M E J 38:348 Ap '16

Suggestions for team work in saving coal. W. E. Brewer. Ry Mech Eng 90:10 Ja '16

Superheaters and oil fuel for Indian locomotives. H. R. Wilson. Ry R 58:63-4 Ja 8 '16

Testing locomotive coals. Engineer 121:159-60 F 18 '16

Trend of tractive power and results on fuel costs; ten years' record 1904-1914. Ry R 58:475-6 Ap 1 '16

Weighing coal for locomotive use. A. G. Zeibel. Ry R 59:148-9 Jl 29 '16

See also Locomotives—Smoke problem; Railroads—Fuel

Gearing

Locomotive power reverse gear on the Louisville & Nashville. *diags* Ry Age 61:839-40 N 10 '16; Same. Ry Mech Eng 90:602 N '16

Inspection

Abstract of annual report of the chief inspector of locomotive boilers. F. McManamy. Ry Age 60:24-5 Ja 7 '16; Same. Ry Mech Eng 90:41-3 Ja '16; Same cond. Ry R 58:330-1 Mr 4 '16

Federal locomotive inspection rules. F. McManamy. Ry Age 60:678-81 Mr 24 '16; Same. Ry Mech Eng 90:175-8 Ap '16

Locomotive inspection system designed to produce thorough inspection and facilitate compliance with the federal rules. N. M. Barker. Ry Mech Eng 90:369-72 Jl '16

See also Locomotive boilers

Lubrication

Graphite in locomotive valve chambers and cylinders. M. C. M. Hatch. Ry Mech Eng 90:118-19 Mr '16

Graphite lubricator for locomotive cylinders. *diag* Ry Age 60:255 F 11 '16; Same. Ry Mech Eng 90:104 F '16

Grease lubrication of locomotive driving boxes. G. J. Burns. Ry Mech Eng 90:234 My '16

Lubrication of slide valves for superheater service. *diags* Ry R 58:670 My 13 '16

Lubricator for locomotive air pumps. *diag* Ry Mech Eng 90:210-11 Ap '16; Same. Ry Age 60:1337 Je 16 '16

Willbert piston-rod and valve-stem lubricator. *il* Ry R 59:493 O 7 '16

Manufacture

Molding a large locomotive cylinder. B. R. Hall. *il* Foundry 44:311-15 Ag '16

Locomotives—Manufacture—Continued

- Radial drill chuck for locomotive cylinders. R. J. Hickman. diags Ry Mech Eng 90:35 Ja '16
 Vanadium cast steel locomotive frames. Ry R 59:183 Ag 5 '16

Performance

- Locomotive performance in 1915 compared with the years 1914, 1909 and 1904. Ry R 58:820-2 Je 10 '16
 Locomotive performance on the London and North-Western railway. Engineer 122:343-4 O 20 '16
 Locomotive water and coal consumption. H. A. Huston. Ry Mech Eng 90:69-71 F '16
 Measuring locomotive performance. E. S. Barnum. Ry Age 60:240 F 11 '16
 Performance of converted locomotives on the Kansas City Southern Ry. il Ry R 58:807-8 Je 10 '16

Piping

- Locomotive piping and jackets. M. J. Cairns. diags Ry Mech Eng 90:420-1 Ag '16

Reconstruction

- Application of outside steam pipes to piston valve engines. diag Ry R 59:5 Jl 1 '16
 Modernizing existing locomotives. H. L. Ingersoll. Ry R 59:176 Ag 5 '16
 Modernizing of existing locomotives; report of committee of American railway master mechanics' association. Ry R 58:936-8 Je 24 '16

Repair

- Classification of locomotive repairs; report. Ry Age 61:408-9 S 8 '16; Ry Mech Eng 90:532-3 O '16; Ry R 59:489-90 O 7 '16
 Comparative locomotive shop ratings. H. Gardner. Ry Mech Eng 90:38-9 Ja '16
 Grinding wheels as applied to locomotive repairs. H. B. Miller; A. Sterner. Ry Mech Eng 90:477-8 S '16
 Improved drop pit. il diags Ry Mech Eng 90:154-5 Mr '16
 Interesting boiler shop devices. il diag Ry Mech Eng 90:249-50 My '16
 Jigs and devices for the enginehouse. A. Connell. diag Ry Mech Eng 90:478 S '16
 Tube welding. G. Massar. Ry Mech Eng 90:463-4 S '16; Same. Ry Age 61:316-17 Ag 25 '16

See also Locomotive shops

Shoes and wedges

- Fitting up shoes and wedges; with discussion. W. E. Warner. il Ry Mech Eng 90:531 O '16

Smoke problem

- Principles of smoke formation. Ry Mech Eng 90:72 F '16
 Production of smoke by the railways of Chicago; smoke abatement report. Ry Age 59:1193-6 D 24 '15
 Removal of locomotive smoke from covered tracks. il diags Ry Age 59:1093-9 D 10 '15
 Smoke and electrification in Chicago. Ry Mech Eng 90:11-14 Ja '16
 Smoke elimination; report of committee of traveling engineers' association. Ry Mech Eng 90:564-5 N '16; Same cond. Ry Age 61:797 N 3 '16
 Washing locomotive smoke. M. D. Franey. diag plan Ry Age 59:558-60 S 24 '15; Same. Ry Age (Mech ed) 89:511-13 O '15; Same. Power 42:561-3 O 19 '15; Same. Sci Am S 81:61-2 Ja 22 '16; Same cond. Eng N 74:906-7 N 4 '15; Excerpt. Ry R 57:387-8 S 25 '15; Abstract. Engineer 121:180 F 25 '16

Statistics

- Car and locomotive orders in 1915. Ry Mech Eng 90:51 Ja '16
 Cars and locomotives ordered and built in 1915. Ry Age 59:1240, 1244-6 D 31 '15; Ry R 58:79-81 Ja 8 '16
 Recent locomotives of the Mallet and Mikado types; tabulation. Ry Mech Eng 90:236 My '16
 Recent locomotives of the Santa Fe and consolidation types; tabulation. Ry Mech Eng 90:235 My '16

Stokers

See Stokers, Mechanical

Superheaters

- Advantages of superheaters, brick arches, and other modern appliances on large locomotives, especially those of the Mallet type. Am Soc M E J 38:1041-2 D '16
 Locomotive superheater performance; with discussion. S. S. Riegel. Ry Mech Eng 90:339-42 Jl '16; Same cond. Ry Age 60:1581-6 Je 30 '16; Abstract. Am Soc M E J 38:676 Ag '16
 Superheater locomotives; report of committee of American railway master mechanics' association. Ry R 58:932-4 Je 24 '16

Testing

- Coal counter for use in locomotive tests. H. G. Boutell. diag Ry Mech Eng 90:120 Mr '16
 Laboratory tests of a consolidation locomotive. E. C. Schmidt, J. M. Snodgrass and R. B. Keller. il diags Ill U Eng Exp Sta Bul 82:1-129 '15; Excerpts. Ry R 58:208-9 F 5 '16; Abstract. Ry Age 60:437-9 Mr 10 '16
 Locomotive impact tests on the Burlington. C. B. Young. il diag Ry Age 60:1029-31 My 12 '16; Same. Ry Mech Eng 90:288-9 Je '16
 Locomotive indicator diagrams. M. C. M. Hatch. il diags Power 44:56-7 Jl 11 '16
 Locomotive testing plant, Iowa state college, Ames. il diags plan Ry R 57:716-18 D 4 '15
 North Western pulverized coal locomotive. il Ry Age 61:227-30 Ag 11 '16
 Water readings in locomotive tests. T. Price. diag Ry Mech Eng 90:126 Mr '16

Valuation

- Locomotive valuation chart. L. R. Pomeroy. Ry Age 60:384 Ap 21 '16

Valves and valve gear

- Performance of the Young valve gear in service. diags Ry R 58:652-3 My 6 '16
 Simplex system of compounding for Mallet locomotives. diags Ry R 58:603-5 Ap 29 '16; Same cond. Ry Age 60:1002 My 5 '16; Same cond. Ry Mech Eng 90:263-4 My '16; Abstract. Am Soc M E J 38:509-10 Je '16
 Special valve diagram applied to Walschaert gear. E. O. Waters. diags Power 44:156-9 Ag 1 '16
 Tests of the Young valve and valve gear. il diags Ry Age 60:802-3 Ap 7 '16; Same. Ry Mech Eng 90:229-30 My '16
 Universal non-packing valve. il Ry Mech Eng 90:207 Ap '16

Weighing

- Locomotive weighing scales. A. W. Thompson. il diag Gen Elec R 19:1119-25 D '16

Wheels

- Expanding mandrel for turning locomotive tires. E. J. Brewster. diags Ry Mech Eng 90:37-8 Ja '16

Locomotives, Electric. See Electric locomotives**Locomotives, Gas and oil**

- British oil locomotives. il Engineer 122:38 Jl 14 '16
 Gasoline locomotives for the trenches. il Sci Am 115:86 Jl 22 '16
 Gasoline locomotives safe in tunnel work if properly run. Eng Rec 73:293-4 F 26 '16
 Gasoline mine locomotives in relation to safety and health. O. P. Hood and R. H. Kuddlich. bibliog il diags U S Bur Mines Bul 74:1-73 '15
 Gasoline switching locomotive for the Erie. Ry Age 61:232 Ag 11 '16; Ry R 59:338 S 9 '16
 Small American petrol locomotives. il diags Engineer 121:484 Je 9 '16

Locomotives, Industrial

- Baldwin locomotive works—Decauville type locomotives for light service. il Eng & Contr 46:256 S 20 '16
 Bell standardized light locomotive. il Eng & Contr 46:434-5 N 15 '16
 Contractors' gasoline dinky with friction drive. il Eng N 76:319 Ag 17 '16
 Contractors' locomotive with oil-fired boiler. il diag Engineer 120:486 N 19 '15
 Decauville type locomotives for light service. il Ry R 59:587-8 O 28 '16
 Locomotive runs three hours on charge from boiler plant. il Eng Rec 73:365 Mr 11 '16

Locomotives, Industrial—Continued

Metallurgical works tramways. W. C. Capron and C. R. Kuzell. *il* diags Eng & Min J 102: 613-20 O 7 '16

Steam storage locomotives. *il* Engineer 122:234 S 15 '16; Ry Age 61:592 O 6 '16

See also Locomotives, Mine

Locomotives, Military

French military locomotives built in America. *il* Eng N 76:215 Ag 3 '16

Locomotives, Mine

Arc and incandescent headlights. P. S. Bailey. *il* Coal Age 9:753-7 Ap 29 '16

Combination gathering motor. F. J. Foley. *il* diag Coal Age 8:928-9 D 4 '15

Electric headlights for mine locomotives. *il* Eng & Min J 102:128 JI 15 '16

Electricity in coal mine haulage. W. P. Little. *il* Gen Elec R 19:693-702, 776-84 Ag-S '16

Gasoline mine locomotives in relation to safety and health. O. P. Hood and R. H. Kudlich. bibliog *il* diags U S Bur Mines Bul 74:1-78 '15

Gasoline motors in mines. Coal Age 9:471 Mr 11 '16

Modern electric mine locomotive. G. Bright. *il* Am Inst E E Pro 34:1615-20 Ag '15; Same. Colliery 36:145-6 O '15; Discussion. Am Inst E E Pro 35:420-1 Mr '16

Neutralizing the discharge from oil engines. Coal Age 9:511 Mr 18 '16

Novel combination locomotive. E. C. De Wolfe. *il* Coal Age 8:923-5 D 4 '15

Rating of mine locomotives. R. E. Hellmund and W. A. Clark. Coal Age 10:337-8 Ag 26 '16

Safe operation of electric mine locomotives. *il* diag Coal Age 10:613 O 7 '16

Springs on mine locomotives. Coal Age 10:441, 512, 551, 648, 726-8 S 9, 23-30, O 14, 28 '16

Storage-battery locomotive in a coal mine. F. J. Foley. *il* Coal Age 9:587-8 Ap 1 '16

Locusts

Fighting locusts with chlorine gas. M. Woolley. *il* Sci Am 114:643 Je 17 '16

Logarithms

Extended logarithms. A. S. Little. J Account 21:34-40 Ja '16

Formation of extended logarithms. A. S. Little. J Account 21:93-100 F '16

Interpolating logarithms. H. D. Fisher. *diag* Power 43:703-4 My 16 '16

Interpolating logarithms with the slide rule. H. B. Schell. Power 43:451-2 Mr 28 '16

Value of logarithms to the toolmaker. G. H. Gardner. Mach 23:61 S '16

Logging. See Lumbering**Logwood**

Dyeing silesia with logwood. Textile World 51:344 Ja 1 '16

Logwood black on cotton yarn. Textile World 51:120+ D 11 '15

Logwood embargo. Textile World 51:115+, 183-4, 339 D 11-18 '15, Ja 1 '16

London**Architecture**

See St. Paul's, London

Bridges

Charing Cross bridge. *diag* Engineer 121:550-1; 122:8-9 Je 30-JI 7 '16

Streets

Paving of the streets of London. Engineer 121: 203-4 Mr 3 '16

Traffic

London traffic. Sci Am S 81:190 Mr 18 '16

Water supply

Water supply of London; summary of report of the Metropolitan water board. Engineer 122:328-9 O 13 '16

London & Southwestern railway

Electrification. Ry R 57:835-6 D 25 '15

Long Island railroad

Eliminating a group of nine grade crossings, on the Long Island R. R. W. L. Selmer. *il* diags plan Ry R 58:536-43 Ap 15 '16

Permanent track organization on the Long Island. G. P. Williams. Ry Age 60:120-1 Ja 21 '16

Longevity

Extension of human life. I. L. Fisher. Sci Am S 81:291 My 6 '16

See also Old age

Longitude

Method of transforming latitude and longitude into plane co-ordinates. S. H. Thorndike. *diags* Boston Soc C E J 3:363-76 S '16

Longleaf pine. See Pine**Longwall mining. See** Coal mines and mining**Looms**

Automatic looms. Sci Am S 81:313 My 13 '16

Improved dobby. *diags* Textile World 51:2697 Je 3 '16

Improvement in reeds. *diag* Textile World 51: 345+ Ja 1 '16

Improvements in Scaife lifter motion. J. Dumville and S. Kershaw. *il* diags Textile World 51:1635+ Ap 1 '16

Loom and spindle. L. Hooper. Sci Am S 81:265 Ap 22 '16

Stop motion for jacquard looms. Textile World 51:4733+ N 4 '16

Warp stop motion. Textile World 51:2249+ My 6 '16

Los Angeles, California**Joint bureau of appraisal**

How buildings were appraised in revaluation of real property of Los Angeles. J. C. Bannister. Eng Rec 73:472-5 Ap 8 '16

Railroads

Los Angeles station provides unusual conveniences for passengers. *il* diags Eng Rec 72:783-4 D 25 '15

Sanitary affairs

Garbage and rubbish disposal in Los Angeles. S. C. Simons. *il* plan Eng N 76:677-80 O 12 '16

Refuse collection in Los Angeles. Munic J 40: 80 Ja 20 '16

Streets

Los Angeles traffic uses rebuilt highway tunnel. *il* Eng Rec 73:451-2 Ap 1 '16

Lowering Broadway tunnel in Los Angeles. R. W. Stewart. *il* diag Eng N 75:414-15 Mr 2 '16

Regrading a tunnel street. C. L. Edholm. *il* Munic J 40:240 F 17 '16

Water supply

Unusual water-works purchase. B. A. Heinly. Eng N 75:554-6 Mr 23 '16

See also Los Angeles aqueduct

Los Angeles aqueduct

Accurate relief map embraces 10,000 square miles. Eng Rec 73:146-7 Ja 29 '16

Building Los Angeles aqueduct irrigation system. B. A. Heinly. Eng N 75:926-7 My 18 '16

Engineering and economic features of the irrigation system of the Los Angeles aqueduct—construction just beginning. B. A. Heinly. *il* map Eng & Contr 45:82-5 Ja 26 '16

Sanitary features of Los Angeles aqueduct. B. A. Heinly. *il* Munic J 40:35-7 Ja 13 '16

Louisville, Kentucky**Sewerage**

Bear Grass creek improvement, Louisville, Kentucky. Munic Eng 49:213-14 D '15

Lowell, Percival, 1855-1916

Sketch. Sci Am 115:482 N 25 '16

Lubricants. See Lubrication and lubricants**Lubrication and lubricants**

Bearing-design constants. L. Illmer. Power 43:251-5, 280-2 F 22-29 '16

Best oil for Diesel engines. J Ind & Eng Chem 8:654-5 JI '16

Cincinnati lubricant pump. *il* Mach 22:354 D '15

Combining graphite with alloy in the manufacture of self-lubricating metal. R. F. Yates. *il* Sci Am 115:318-19 O 7 '16

Comparative quality of oil. G. A. Smith. Power 43:848 Je 13 '16; Same. Coal Age 10: 148 JI 22 '16

Comparative quality of oils. H. R. Smith. Power 44:426 S 19 '16

Lubrication and lubricants—Continued

- Cutting and drawing compounds and oils. Mach 22:591 Mr '16
- Cutting down cylinder oil. Power 43:23-4, 53, 227-8, 411 Ja 4-11, F 15, Mr 21 '16
- Cylinder lubrication question. Power 43:192, 266, 447-8, 707 F 8, 22, Mr 28, My 16 '16
- Cylinder-oiling device. J. C. Schenck. diag Power 44:28 Jl 4 '16
- Data on the oxidation of automobile cylinder oils. C. E. Waters. U S Bur Stand Tech Pa 73:1-20 '16; Same cond. J Ind & Eng Chem 8:587-92 Jl '16; Abstract. Automobile 35:283 Ag 17 '16
- Double-connection lubricator with single connection. J. R. Chapman. il Power 43:816 Je 6 '16
- Electrically heated lubricator. il Elec W 67:336 R 5 '16
- Elevator machinery lubrication. J. Gintz, jr. Power 44:562 O 17 '16
- Engine-room lubrication. E. R. Higgs. Power 44:395-6 S 12 '16
- Engine-room lubrication. G. A. Townsend. Power 43:905-7 Je 27 '16
- Federal graphite lubricator. il Power 43:188 F 8 '16
- Flange oiler for reducing curve friction on interurban railways. F. G. Lister. diags Elec Ry J 47:700-1 Ap 8 '16
- Forced feed lubrication aboard ship. Int Marine Eng 20:565-6 D '15
- Fractional distillation of lubricating oils. J. G. O'Neill. Power 44:108-12 Jl 18 '16
- Goulds oil-pumping units. il Power 43:391 Mr 21 '16
- Graphite as a lubricant. C. H. Bierbaum. il Mach 22:887-8 Je '16
- Gravity oiling system. J. J. Newbaker. plan Power 44:28 Jl 4 '16
- Grinding machine circulating pump. diag Iron Age 98:19 Jl 6 '16
- How to lubricate wire rope. il Coal Age 10:427 S 9 '16
- Increasing the lubricator capacity. D. McKay. diag Coal Age 9:872 My 20 '16
- Lubricant in grinding. Mach 22:460 F '16
- Lubricants and lubrication. J. D. Morgan. Power 43:317-18 Mr 7 '16
- Lubricants for metals. P. W. Blair. Metal Ind n s 14:158-9 Ap '16
- Lubricating bearings. W. D. Forbes. Int Marine Eng 21:343-4 Jl '16
- Lubricating-oil supply system. H. G. Boutell. diag Power 43:372 Mr 14 '16
- Lubrication engineering. J. R. Battle. Power 43:405-6 Mr 21 '16
- Lubrication of bearings and cylinders. F. L. Fairbanks. diags Power 42:805-8 D 7 '15; Abstract. Am Soc M E J 38:186-7 F '16
- Lubrication of cylinders and bearings. G. J. Tropper. Power 43:84-5 Ja 18 '16
- Lubrication of poppet-valve engines. B. V. Nordberg. Power 44:600 O 24 '16; Same. Eng N 76:808-9 O 26 '16
- Lubrication of station and industrial machinery. A. C. Scott. Elec W 67:817-19, 1094-6, 1351-2 Ap 8, My 13, Je 10 '16
- Lubrication system for construction machinery. S. E. Lawrence. diags Eng N 76:317-19 Ag 17 '16
- Lubricator pump will not feed. diags Power 43:322, 44:174 Je 27, Ag 1 '16
- New self-lubricating material. Graphalloy. Textile World 51:1407 Mr 11 '16
- Oil bushing and packing lubricator. il Coal Age 9:337 F 19 '16
- Oil in engine cylinders. Eng N 76:663 O 5 '16
- Oil flood for threading machines. il Metal Work 84:752 D 10 '15
- Oil reservoir too small. H. G. Gibson. diag Power 42:868 D 21 '15
- Oils and motor fuels; discussion. J Ind & Eng Chem 8:967-8 O '16
- Playful porpoise and its economic value. R. G. Skerrett. il Sci Am 115:3 Jl 1 '16
- Practical lubrication. C. S. Bryan. Textile World 51:2677+ Je 3 '16
- Press-room lubricants. G. R. Smith. Mach 23:154 O '16
- Pressure oil film lubrication; abstract. H. B. Newbiggin. Iron Age 98:1114 N 16 '16
- Progress in car equipment lubrication. A. Green. il Elec Ry J 47:819-22 Ap 29 '16

- Properties of oils and their relation to lubrication. G. B. Upton. Sibley J 30:277-82 Je '16
- Rectangular lubricator. il Elec W 67:111 Ja 8 '16
- Steam-cylinder lubrication. E. B. Kellogg. Power 44:176 Ag 1 '16
- Sweeley graphite cylinder lubricator. diag Ry R 59:192 Ag 5 '16
- Use of graphite in the lubrication of cylinders. F. W. Carter. Power 43:47-8 Ja 11 '16
- Value of cylinder oils. C. E. Carpenter. Power 43:519-20 Ap 11 '16
- Value of cylinder oils. F. L. Fairbanks. Power 43:701-3 My 16 '16
- Viscosity and its relation to lubricating value. A. E. Flowers. Power 43:37-40 Ja 11 '16
- Viscosity in cylinder oils. C. E. Carpenter. Power 44:101-3 Jl 18 '16; Discussion. 44:250-1, 463-4, 598-9, 630-2, 697 Ag 15, S 26, O 24, 31, N 14 '16
- Where cup grease works best. A. L. Westcott. Factory 17:42+ Jl '16
- Wire-rope lubrication. il Eng & Min J 101:858 My 13 '16
- Wire rope lubrication. G. R. Rowland. Coal Age 9:789-90 My 6 '16; Abstract. Am Soc M E J 38:595 Jl '16
- See also Automobiles—Lubrication; Bearings; Graphite; Locomotives—Lubrication; Oil filters; Oils and fats

Testing

- Navy test of lubricating oil. J. L. Kauffman. Power 44:466-7 S 26 '16
- System for plotting and cross-fairing results in lubrication testing. G. B. Upton. Sibley J 30:194-6 Mr '16; Same cond. Am Soc M E J 38:428 My '16

Lumber

- Branding lumber at the mill. il Ry Age 61:64 Jl 14 '16
- By-products of the lumber industry. H. K. Benson. il diags U S Bur For & Dom Com 110:1-68 '16; Excerpt (Minor products of wood). Sci Am S 82:8-9 Jl 1 '16
- City engineer defines quality of lumber to use. Eng Rec 74:85 Jl 15 '16
- Concrete supports for lumber piles. M. D. Campbell. il diag Ry Age 60:131 Ja 21 '16
- Hints for the ordering of lumber. T. O. Wood. Ry Age 59:1150 D 17 '15
- Lumber statistics for 1915. Ry Age 60:1145 My 26 '16
- Lumber uses. W. B. Bullock. Am For 22:365 Je '16
- Quarantining against decay. Am Ind 16:37 D '15
- Railway storekeepers' association committee report on lumber. Ry Age 60:1099-1100 My 19 '16; Same. Ry Mech Eng 90:295-6 Je '16; On economical ordering of lumber. Ry R 58:712 My 20 '16
- Tables facilitate accuracy in timber beam design. R. C. Hardman. Eng Rec 73:138-9 Ja 29 '16
- Uses of lumber. W. B. Bullock. Am For 22:173-4 Mr '16
- See also Forests and forestry; Lumber trade; Lumbering; Pine; Redwood; Sawmills; Timber; Willow; Wood

Lumber handling

- Device for rapid loading and unloading of lumber. il Eng & Contr 46:373 O 25 '16
- Portable electrically operated lumber-piling machine. il Elec W 67:783 Ap 1 '16
- Special vehicle for lumber yard. il Sci Am 115:374+ O 21 '16

Lumber trade

- Australasian markets for American lumber. F. H. Smith. U S Bur For & Dom Com 109:1-48 '16
- Lumber markets of the east coast of South America. R. E. Simmons. il U S Bur For & Dom Com 112:1-121 '16
- Lumber markets of the west and north coasts of South America. R. E. Simmons. il U S Bur For & Dom Com 117:1-149 '16
- Lumber rate investigation opened in Chicago. Ry R 59:91-2 Jl 15 '16
- Lumber situation. W. E. Barnes. Ry Age 60:495 Mr 17 '16
- Lumber supply of the world. Am For 22:432-3 Jl '16

Lumber trade—Continued

- Measuring and marketing woodlot products. W. R. Mattoon and W. B. Barrows. *il* *diags* U S Agric Farmers' Bul 715:1-48 '16
 Our vanishing export trade in the products of American forests. *il* *Sci Am* 114:319+ Mr 25 '16

Accounting

- Need of uniform accounting in the lumber industry. J. G. McIntosh. *J Account* 22:10-15 Jl '16

Lumbering

- New topographic survey methods for rapid work. J. H. Bonner and F. E. Bonner. *il* *Eng N* 75:24-7 Ja 6 '16
 Novel methods of logging employed by lumbermen in British Columbia. *Sci Am* 115:284 S 23 '16
 Shortleaf pine; its economic importance and forest management. W. R. Mattoon. *il* U S Agric Bul 308:11-21 '15
 Wood waste. J. G. Dorrance. *il* *Sci Am* 114:382-3+ Ap 8 '16
See also Forests and forestry; Lumber trade

Accounting

- Logging in western Washington. W. Jensen. *J Account* 21:125-35 F '16

Safety devices and measures

- Safety rules for loggers. *Eng & Min J* 102:588 S 30 '16

Luminescence comparator

- Luminescence comparator. W. S. Andrews. *il* *Gen Elec R* 19:892-3 O '16; Same cond. *Elec W* 68:821 O 21 '16

Luminosity of animals. See Phosphorescence**Lunch rooms**

- Competing with the dinner pail. L. I. Thomas. *il* *Factory* 17:260-3 S '16
 How a superintendent increased production. *Textile World* 51:203 D 18 '15
 Novel shop restaurant of Endicott, Johnson & co. *il* *Iron Age* 98:585-6 S 14 '16

Lungmotor. See Respiratory apparatus**Lutes**

- Lutes and cements. S. S. Sadtler. *Met & Chem Eng* 14:197-200 F 15 '16; Same. *Sci Am S* 81:278-9 Ap 29 '16

M**Macadamized roads. See Roads, Macadamized****Macaroni**

- Motor drive in the manufacture of macaroni. F. D. Burr. *il* *Elec R & W Elec'n* 68:1155-6 Je 24 '16

Machine design. See Machine tools—Design; Machinery—Design**Machine guards. See Machinery—Safety devices****Machine guns. See Guns (ordnance)****Machine shop management**

- Getting the most out of tools. B. W. Benedict. *Ry Mech Eng* 90:35-7 Ja '16
 How a Worcester plant controls production. W. E. Freeland. *il* *Iron Age* 98:747-53 O 5 '16
 Keeping a record of odd sizes. *Factory* 17:740, 742 D '16
 Locating trouble. A. L. Haas. *Mach* 22:824 My '16
 Production methods in gas engine plant. O. J. Abell. *il* *Iron Age* 98:533-5 S 7 '16
 Production system in a 75-man shop; Waterbury tool co. W. E. Freeland. *il* *plan* *Iron Age* 98:871-6 O 19 '16
 Tool system of Cadillac motor car co. E. K. Hammond. *il* *Mach* 22:867-75; 23:143-53 Je, O '16

See also Electric railroads—Shops; Locomotive shops; Machine shop practice; Mechanical handling; Railroads—Shops; Repair shops; Scientific management; Steel works

Machine shop practice

- Electrical manufacturing operations. C. L. Lucas. *il* *diag Mach* 22:741-5 My '16

High-explosive shell cartridge cases. D. T. Hamilton. *il* *Mach* 22:320-9 D '15

How we made the switch parts. A. P. Press. *diags Mach* 22:602 Mr '16

Labor saving devices in the machine shop. A. A. Dowd. *il* *diags Eng M* 51:66-80, 194-208, 401-12 Ap-Je '16

Machine shop equipment and methods. E. R. Norris and H. F. L. Orcutt. *Iron Age* 96:1298-9 D 2 '15

Machining a thin brass washer. *diags Mach* 22:959 Jl '16

Machining an automatic sprinkler head. *diags Mach* 23:49-50 S '16

Machining angular surfaces. W. S. Rowell. *diags Mach* 22:603 Mr '16

Machining barrels and sight parts. D. T. Hamilton and others. *il* *diags Mach* 22:643-53 Ap '16

Machining high-explosive shells. D. T. Hamilton. *il* *diags Mach* 22:282-313 D '15

Machining magazine and trigger guard and parts, gun stocks, miscellaneous parts. D. T. Hamilton and others. *il* *diags Mach* 22:758-78 My '16

Machining operations on the gear shaper. *il* *Mach* 22:555-7 Mr '16

Machining rifle bolt and parts. D. T. Hamilton and others. *il* *diags Mach* 22:660-9 Ap '16

Machining rifle receiver and parts. D. T. Hamilton and others. *il* *diags Mach* 22:654-60 Ap '16

Machining rifling bars on the bench lathe. A. H. Cleaves. *diags Mach* 22:751-2 My '16

Machining the band grooves in shrapnel shells. J. W. Geary. *diags Mach* 22:331-2 D '15

Making cartridge cases on bulldozers and planers. D. T. Hamilton. *il* *diags Mach* 22:386-90 Ja '16

Manufacture of ball bearings. *il* *Mach* 22:1021-5 Ag '16

Manufacture of circular metal saws. F. M. Shaw. *il* *diags Mach* 23:11-14 S '16

Manufacture of detonating fuses for high explosive shells; metal working by means of automatic machinery. *il* *diags Metal Ind n s* 14:293-5 Jl '16

Munitions making for small manufacturers. G. Harrison. *il* *Eng M* 50:521-31 Ja '16

New method of building lathes. *il* *Mach* 22:877-9 Je '16

Notes on toolmaking. W. Young. *Mach* 22:1042-3 Ag '16

Proposed plan for the activities of the machine shop practice sub-committee of the American society of mechanical engineers. H. K. Hathaway. *Am Soc M E J* 38:972 D '16

Special machines for making fuse parts. *il* *diags Mach* 23:65-72 S '16

Tool engineering in motor car manufacture. E. K. Hammond and A. A. Dowd. *il* *diags Mach* 22:927-54 Jl '16

War work: results in American shops. C. A. Tupper. *Iron Age* 97:75-8 Ja 6 '16

See also Broaching; Chucks; Drafting room practice; Drilling and boring (metal working, etc.); Dynamos; Electric driving; Engines; Forging; Foundry practice; Gages; Gear cutting; Grinding and polishing; Lathes; Locomotive shops; Machine design; Machine shop management; Machine tools; Machinery; Mechanical engineering; Metal cutting; Pattern making; Planing machines; Railroads—Shops; Riveting; Sheet metal work; Steel works; Welding

Machine shops

Cranes for the machine shop and foundry. H. M. Lane. *diags Iron Age* 96:246-8 Jl 29 '15; Same. *Eng & Contr* 44:476-7 D 22 '15

Economy effected by individual motor drive in machine shops. *Elec R & W Elec'n* 68:551 Mr 25 '16

Efficient handling of screw parts; the Continental motors company. H. S. Spillman. *il* *Iron Age* 97:1431-3 Je 15 '16

Estimating on new equipment. D. Fliegelman. *Power* 43:302 F 29 '16

Gas engine drive in large machine shop. F. L. Prentiss. *il* *Iron Age* 98:389-91 Ag 24 '16; Same. *Am Gas Light J* 105:148 S 4 '16

Large frog and switch plant at Easton, Pa. built in practically one year. *il* *plan Eng Rec* 72:698-700 14 4 '15

Large water-works machine shop at Los Angeles. B. A. Heinly. *il* *Eng N* 75:653 Ap 6 '16

Machine shops—Continued

- Machine shop of the National acme mfg. co., Cleveland. Iron Age 98:125-9 J1 20 '16
 Modern equipment for the brass-working machine shop. P. W. Blair. il Metal Ind n s 14:22-4 Ja '16
 National projectile factory. il diags plan Engineer 122:67-9 J1 28 '16; Same cond. Iron Age 98:352-4 Ag 17 '16
 Notable machine shop of moderate size. W. E. Freeland. il plan Iron Age 97:1483-6 Je 22 '16
 Originality in a Hartford machine works. il Iron Age 97:1305-8 Je 1 '16
 Production system in a 75-man shop; Waterbury tool co. W. E. Freeland. il plan Iron Age 98:871-6 O 19 '16
 Two labor-saving schemes; results of plant rehabilitation by Newton machine tool works. il Iron Age 98:1103 N 16 '16
See also Electric driving; Electric railroads; —Shops; Locomotive shops; Machine shop management; Machine shop practice; Machine tools; Mine shops; Railroads—Shops; Repair shops

Safety devices and measures

- How to secure safety in the shop. F. R. Hutton. il Iron Tr R 58:817-20 Ap 13 '16
 Modern ideas in a New England shop. W. E. Freeland. il Iron Age 96:1457-60 D 23 '15
 Safeguards used on machine and wood-working tools at the shops of the Queen & Crescent route, Somerset, Ky. il Ry R 59:515-17 O 14 '16

See also Machinery—Safety devices

Machine shops, Portable

- Portable machine shop for U. S. army. il Elec W 68:263 Ag 5 '16
 Portable machine shops for the United States army. W. S. Dossy. il Iron Tr R 59:220-2 Ag 3 '16

Machine sizing. *See* Machinery supplies—Sizing
Machine tool builders association, National. *See* National machine tool builders association

Machine tool industry

- After the war; what of the new munitions plants, the machine tool export trade and wages? symposium. Iron Age 97:87-90 Ja 6 '16
 Exportation of American machine tools. G. R. Woods. Mach 22:469 F '16
 Extraordinary profits are earned. Iron Tr R 58:110+ Ja 6 '16
 Future markets for machine tools. F. A. Churchill, jr. Iron Tr R 58:10-13 Ja 6 '16
 How to go after South American trade. R. W. Gifford. Mach 22:497-8 F '16
 Machine tool prices and deliveries. R. H. Jones. Iron Tr R 59:26 J1 6 '16
 Machinery industry on the continent; machine tool building in France, Italy and Switzerland. A. Luchars. Mach 23:129-31 O '16
 Markets for machinery and machine tools in Argentina. J. A. Massel. 15 il U S Bur For & Dom Com 116:1-64 '16
 1915 war trade in machine tools. H. Prentiss. Iron Age 97:151-2 Ja 13 '16
 Why machine tool prices are high. J. Nelson. Iron Tr R 59:211-13 Ag 3 '16

Machine tools

- Albert Ball's magazine rifle of 1863; machine tool development and rifle manufacture. G. Hubbard. il diags Mach 22:1057-60 Ag '16
 Bulldozer exerting 500 tons pressure. il Iron Age 96:1560 D 30 '15; Iron Tr R 57:1285 D 30 '15
 Channeling and channeling machines. C. L. Lucas. il diags Mach 22:453-8 F '16
 Circular forming tools for no. 6 B. & S. screw machine; with tables. W. W. Johnson. diags Mach 23:20-3 S '16
 Cleveland relieving machine. il Iron Tr R 59:692 O 5 '16
 Electric control equipment for machine tools. il Engineer 121:136 F 11 '16
 Electric operation and automatic electric control for machine tools. L. C. Brooks. il diags Am Soc M E J 38:112-17 F '16; Same. Iron Tr R 58:479-86 Mr 2 '16; Abstract. Iron Age 96:1406-7 D 16 '15; Discussion. Am Soc M E J 38:117-21 F '16; Discussion. Iron Tr R 58:542-5, 591-2 Mr 9-16 '16

- Horne-Dale-Brown shell manufacturing machinery. il diags Mach 22:704-6 Ap '16
 Labor saving devices in the machine shop. A. A. Dowd. il diags Eng M 51:66-80, 194-208, 401-12; 52:324-38 Ap-Je, D '16
 Machine shop tool equipment. H. D. Wolcomb. Ry R 58:339-41 Mr 4 '16
 Machinery for the production of projectiles. il diags Engineer 119:572-6, 599-602, 634-6; 120:8, 116-17, 278, 338-9, 558-9; 121:42-3 Je 11-J1 2, 30, S 17, O 8, D 10 '15, Ja 14 '16
 Manning, Maxwell & Moore machinery for rifle manufacture. il Mach 22:709-12 Ap '16
 Multi-purpose and adjustable fixtures. A. A. Dowd. diags Mach 22:562-8 Mr '16
 Newton machine tool works brings out three novel machine tools. il Iron Tr R 57:1283-4 D 30 '15
 Press tools for making sheet steel corset stays. il Mach 22:1053 Ag '16
 Relieving machine for formed cutters. il Iron Age 98:1219 N 30 '16
 Root & Van Dervoort line of shell machinery. il Mach 22:701-4 Ap '16
 Selection of machine tools. G. W. Armstrong. Ry Mech Eng 90:89-91 F '16
 Sheet metal workers' modern machine tools. il diags Metal Work 85:51-5 Ja 7 '16
 Shell machining equipment. il diags Engineer 121:253-6 Mr 24 '16
 Shell making tools. il diags Engineer 121:180-1 F 25 '16
 Shop tools and equipment. il Horseless Age 37:225-8 Mr 15 '16
 Single purpose machines in shell making. C. A. Tupper. diags Iron Age 96:1288-91 D 2 '15
 Some tools used in manufacturing the Corona typewriter. il Mach 22:831-4 Je '16
 Standardization of machine tools. C. G. Barth. diags Am Soc M E J 38:968-71 D '16
 Symington line of special shell manufacturing machinery. il diags Mach 22:526-30 F '16
 Tool engineering in motor car manufacture. E. K. Hammond and A. A. Dowd. il diags Mach 22:927-54 J1 '16
 Tool system of Cadillac motor car co. E. K. Hammond. il Mach 22:867-75; 23:143-53 Je, O '16
 Tools mounted with cutting edge down. W. S. Rowell. diags Mach 22:799-800 My '16
 Triple-turret boring and turning mill. il Iron Age 98:351 Ag 17 '16
 Typical tools and devices from Canadian shell shops. Am Soc M E J 38:182 F '16

See also Arbors (machinery); Chucks; Clutches; Cutting machines; Drilling and boring (metal working, etc.); Drilling and boring machinery; Electric driving; Gear cutting machines; Grinding and polishing; Grinding machines; Heading machines; Lathes; Machine shop practice; Machine tool industry; Milling machines; Planing machines; Pneumatic tools; Punching machinery; Reamers; Saws; Screw machines; Shears; Tapping machines; Thread cutting machines; Tool steel; Wire-working machinery; Woodworking machinery

Design

- Jig and fixture design. G. M. Meyncke. diags Mach 22:513-14 F '16
 Jig and fixture details—clamps and straps. R. F. Pohle. diags Mach 22:839-41 Je '16
 Opportunity for the toolmaker. F. B. Jacobs. Mach 22:973-4 J1 '16

See also Jigs

Fixtures

- Application of the three-point principle in fixtures. A. A. Dowd. diags Mach 22:499-504 F '16
 Hand-operated wire bending fixtures. G. P. Breitschmid. il diags Mach 22:515-16 F '16
 Holding devices for tapered work. A. A. Dowd. diags Mach 22:413-19 Ja '16
 Is continuous milling always the most rapid method? G. H. Cheney. diags Mach 22:693-4 Ap '16
 Jig and fixture design. G. M. Meyncke. diags Mach 22:513-14 F '16
 Jig and fixture details—clamps and straps. R. F. Pohle. diags Mach 22:839-41 Je '16
 Machining operations on the gear shaper. il Mach 22:555-7 Mr '16

Machine tools—Fixtures --Continued

- Methods of holding work for grinding. D. T. Hamilton. *il* diags Mach 22:487-96 F '16
 Milling threading die chasers. A. J. Dremel. *diag* Mach 22:984 J1 '16
 Modern machine vises and applications. F. H. Mayoh. *diags* Mach 22:596-600 Mr '16
 Multi-purpose and adjustable fixtures. A. A. Dowd. *diags* Mach 22:562-8 Mr '16
 Oil grooving fixture. *diags* Mach 22:697-8 Ap '16
 Old man drilling post. L. Smith. *diags* Ry Mech Eng 90:589 N '16
 Plunger for holding bar stock. E. F. Glass. *diags* Ry Mech Eng 90:589 N '16
 Self-centering milling machine vise. *diags* Mach 22:798 My '16
 Work-holding fixtures for internal grinding. *il* *diags* Mach 23:53-4 S '16
See also Chucks; Jigs

History

- History of machine tools. J. W. Roe. *il* *diags* Mach 22:371-5 Ja '16

Manufacture

- Assembling methods of the Jones & Lamson machine co. E. K. Hammond. *il* *diags* Mach 22:470-2 F '16
 Machine tool building chart. Mach 23:141-2 O '16
 Roughing out Fellows gear shaper cutter blanks; modifications in construction of Gridley automatic. E. K. Hammond. *il* *diags* Mach 22:476-8 F '16

Standards

- Advantages of proposed production of tools in government factories. J. H. Barr. *Am Soc M E J* 38:439 Je '16
 Government commission to handle munitions. O. Smith. *Am Soc M E J* 38:438-9 Je '16
 Standardization of machine tools. C. G. Earth. *diags* *Am Soc M E J* 38:968-71 D '16
 Why standardize machine tools? L. P. Alford. *Iron Tr R* 58:934-6 Ap 27 '16; *Same*. *Am Soc M E J* 38:448-9 Je '16

Testing

- Inspecting lathes. J. J. Ralph. *diags* Mach 23:7-10 S '16
 Testing special shell-boring lathes. L. C. Morrow. *il* *diags* Mach 23:38-9 S '16

Machine work**Cost**

- Estimating the cost of machine work. E. C. Smith. Mach 22:889-90 Je '16

Machinery

- Difficulties of the erector. J. P. Stone. *diags* Power 43:370-1 Mr 14 '16
 Pressure developed by friction screw presses. F. J. W. Sparkuhl. *il* *diag* Mach 22:846-9 Je '16
 Purchasing large machinery. G. A. Orrok. *Iron Age* 97:950 Ap 20 '16

See also Agricultural machinery; Assembling methods; Ball bearings; Bearings; Belting; Bookbinding machinery; Brakes; Bushings; Calculating machines; Clutches; Coal mining machinery; Conveying machinery; Cotton machinery; Cranes, derricks, etc.; Crankshafts; Crushing machinery; Cylinders (engines); Dyeing machines; Electric engineering; Electric machinery; Engineering; Engines; Excavating machinery; Fans, Mechanical; Foundry machinery; Friction; Gearing; Grinding machines; Heading machines; Hoisting machinery; Hosiery machines; Hydraulic machinery; Inventions; Jacks; Jigs; Keys and keyways; Knitting machinery; Lathes; Linotype; Locomotives; Looms; Lubrication and lubricants; Machine shop practice; Machine tools; Machinery supplies—Sizing; Manufactures; Mechanical handling; Mechanics; Medical instruments and apparatus; Milling machines; Mining machinery; Molding machines; Nameplates; Patents; Pattern making; Paving machinery; Phonographic writing machine; Planing machines; Power transmission; Presses; Printing presses; Pulleys; Pumping machinery; Refrigeration and refrigerating machinery; Road-making machinery; Screw machines; Screws; Sewing machines; Shafting;

Shafts; Shoveling machines; Snow plows; Spinning machinery; Springs (mechanism); Steam engines; Swaging machines; Testing machines; Textile machinery; Thread cutting machines; Turbines; Typesetting machines; Typewriters; Valves; Water wheels; Welding machines; Wire-working machinery; Woodworking machinery; Woolen and worsted machinery

Balancing

See Balancing of machinery

Design

- Accelerating force of reciprocating parts. H. L. Watson. *diags* Mach 22:1044-5 Ag '16
 Board drop-hammers; general construction, operation and design. *diags* Mach 22:1062-70 Ag '16
 Chart for determining engine frame loads. E. A. Andrews. Mach 22:1056 Ag '16
 Design of automatic machinery. J. W. Wunsch. Mach 22:1052 Ag '16
 Design of hydraulic presses. H. Friedmann. *diags* Mach 22:783-7 My '16
 Four-gear epicyclic trains. M. Terry. *diags* Mach 22:588 Mr '16
 Sales engineer and his relation to production and machine design. A. J. Baker. *il* *Am Soc M E J* 38:855-8 N '16; *Same*. *Iron Tr R* 59:318-23 Ag 17 '16; *Same* cond. *Iron Age* 97:1054-7 My 4 '16
 Sense of proportion; applying the principle of similarity to the designing of machinery. *Sci Am S* 82:227 O 7 '16
 Spiral of Archimedes; its practical value to the modern craftsman. H. G. Schaefer. *diags* *Sci Am* 115:280 S 23 '16
See also Ball bearings; Bearings; Belting; Bolts and nuts; Bushings; Cams; Clutches; Drafting room practice; Gearing; Keys and keyways (machinery); Machine tools—Design; Shafts; Springs (mechanism); Sprocket wheels

Foundations

- Building an unusual foundation for a heavy machine. G. L. Knight. *il* *diags* Eng N 75:396-8 Mr 2 '16
 Casings for anchor-bolts of machinery foundations. J. E. Poche. *diags* Power 43:559-60 Ap 18 '16
 Casings for machinery-foundation anchor bolts. B. Page. *diags* Power 43:12-14 Ja 4 '16; *Excerpts*. *Coal Age* 9:630 Ap 8 '16
 Fan foundations for noiseless operation. *diags* Heat & Ven 13:48-9 S '16
 Fan motor installations that minimize vibration. T. W. Reynolds. *diags* Elec W 67:880 Ap 15 '16
 Foundation-bolt casings for machinery. *diags* Eng & Min J 101:561 Mr 25 '16
 Graphic analysis of building vibrations. E. E. Hall. *il* *Elec W* 66:1356-8 D 18 '15
 Grouting under heavy machinery. D. H. Heron. *il* *Power* 43:370 Mr 14 '16
 Rigid cylinder supports. H. A. Fisher. *Power* 44:534 O 10 '16
 Rigid cylinder supports. J. Stewart. *diag* Power 44:393-4 S 12 '16
 Use of concrete machine foundations in Germany. *il* *diags* Power 43:783-4A My 30 '16
 Ways of anchoring new foundations to old ones. H. C. Erhardt. *diags* Elec W 66:1261 D 4 '15

Interchangeable mechanism

See Interchangeable mechanism

Law

- Recent legal decisions involving machinery. *See* monthly numbers of Machinery

Safety devices

- Details of heating and ventilating work; safety devices used with engines. F. G. McCann. *diags* Metal Work 85:542 Ap 21 '16
 Failing-rope indicator; auto-trip and safety device. R. S. Handy. *il* Eng & Min J 101:186 Ja 22 '16
 Preventive appliances. *diags* Am Ind 16:sup1-4 J1; sup1-4 Ag '16
 Safety appliances in car shops. H. P. Megargee. *il* Elec Ry J 46:1252-4 D 25 '15
 Safety guards for simple ends. W. Schneider. *diag* Power 43:14 Ja 4 '16

Machinery—Safety devices—Continued

- Safety in brick and tile manufacturing. *il*
Am Ind 17:supl-4 O '16
 Safety in planing mills and furniture fac-
 tories. *il Am Ind* 17:supl-4 N '16
 Symposium on industrial safety at annual
 meeting of American society of mechanical
 engineers. *Iron Age* 96:1418-19, 1427-8 D 16
 '15
See also Cranes, derricks, etc.—Safety de-
 vices; Grinding machines—Safety devices;
 Machine shops—Safety devices and meas-
 ures; Textile machinery—Safety devices

Testing

- Optically studying stresses in machine parts.
 Horseless *Age* 37:157+ F 15 '16

Machinery, Automatic

- American automatics to rescue in France. O. J.
 Abell. *Iron Age* 96:1286-7 D 2 '15
 Automatic mechanical control of lathes and
 screw machines. L. D. Burlingame. *il diags*
Am Soc M E J 38:103-9 F '16; Abstract.
Iron Age 96:1406 D 16 '15; Discussion. *Am*
Soc M E J 38:109-12 F '16
 Design of automatic machinery. J. W. Wunsch.
Mach 22:1052 Ag '16
 Electric operation and automatic electric con-
 trol for machine tools. L. C. Brooks. *il*
diags Am Soc M E J 38:112-17 F '16; Same.
Iron Tr R 58:479-86 Mr 2 '16; Discussion. *Am*
Soc M E J 38:117-21 F '16; Discussion. *Iron*
Tr R 58:542-5, 591-2 Mr 9-16 '16
See also Screw machines

Machinery, Electric. See Electric machinery**Machinery, Medieval**

- Medieval machinery. *il Sci Am* 115:64 J1 15
 '16

Machinery, Photography of

- Making phantom views of machinery photo-
 graphically. *il Mach* 23:124 O '16

Machinery industry

- British machinery and the Russian market.
 P. Gurewitch. *Engineer* 121:260-1, 298-9, 340-
 1, 370-1 Mr 24, Ap 7, 21, My 5 '16
 Canadian metal imports from United States.
 W. L. Edmonds. *Iron Age* 98:359-61 Ag 17 '16
 Cleveland makes much machinery. W. S. Dox-
 sey. *il Iron Tr R* 59:sup64-5 S 7 '16
 Customs information; nippers and pliers duty
 —machine tools defined—relation of finish
 to ultimate condition. J. Chopak, jr. *Mach*
 22:622 Mr '16
 Exports of machinery for June and for fiscal
 years ended June 30, 1915 and 1916; tabula-
 tion. *Iron Age* 98:304 Ag 10 '16
 February-export values make new record. *Iron*
Age 97:948-9 Ap 20 '16
 Iron, steel and machinery exports in 1915.
Iron Age 97:428-9 F 17 '16
 January iron, steel and machinery exports.
Iron Age 97:609-10 Mr 9 '16
 Machinery and supply men at Pittsburgh;
 triple convention. *Iron Age* 97:1200-5 My 18
 '16
 Machinery dealers meet in New York. *Iron*
Age 98:372-3 O 26 '16
 Machinery industry in Great Britain.
 A. Luchars. *Mach* 23:51-2 S '16
 Machinery pound prices. A. B. Hazzard. *Mach*
 23:37 S '16
 Machinery trade's greatest year. C. Lundberg.
Iron Age 97:128-30 Ja 6 '16
 Markets for machinery and machine tools in
 Argentina. J. A. Massel. 15 *il U S Bur For*
 & Dom Com 116:1-64 '16
 Markets for machinery and machine tools in
 Peru, Bolivia, and Chile. J. A. Massel. *U S*
Bur For & Dom Com 118:1-88 '16
 Selling machinery by motion pictures. J. M.
 Torr. *il Eng M* 50:509-20 Ja '16
 Triple convention of machinery manufacturers
 and dealers, Pittsburgh, May 10-12. *Iron Tr*
R 58:1110-12 My 18 '16
See also Agricultural machinery

Machinery supplies**Sizing**

- How machinery materials and supplies are
 sized. F. Horner. *Mach* 22:479-81 F '16

Machines. See Machinery**Machines, Centrifugal. See Centrifugal machines****Machinists**

- Choosing a trade. F. B. Jacobs. *Mach* 23:118-
 19 O '16

McKim, Charles Follen, 1847-1909

- Personal reminiscences of Charles Follen Mc-
 Kim. G. Brown. *por Arch Rec* 38:575-82, 681-
 9; 39:84-8, 178-85 N '15-F '16

McKim, Mead and White, architects

- Work of McKim, Mead and White. D. Barber.
Arch Rec 40:393-6 O '16

Mackinaw

- Details of proper finishing for mackinaws.
Textile World 51:3731+ Ag 26 '16

McKinney, Robert Cochran, 1851-1916

- Sketch. *por Iron Age* 98:828 O 12 '16

MacLaurin, Richard Cockburn, 1870-

- Sketch. *Eng Rec* 73:846 Je 24 '16

McNeill, Bedford, 1861-1916

- Sketch. *Engineer* 122:284 S 29 '16

Madison, Wisconsin**Sanitary affairs**

- Water and sewer improvements. *diags map*
Eng N 75:694-5 Ap 13 '16

Magic lantern. See Lantern projection

- Magic pictures; a novel diversion. S. L. Bastin.
il Sci Am S 82:180 S 16 '16

Magnalium

- Magnalium is a German product. Automobile
 33:1064-5 D 9 '15

- Reclamation of magnalium from turnings. J.
 Coulson. *Metal Ind n s* 13:455-7 N '15; Same.
 Foundry 44:23-5 Ja '16; Abstract. *Am Soc*
M E J 37:655-6 N '15

Magnesia

- Lime: magnesia ratio in soil amendments. W.
 Thomas and W. Frear. *J Ind & Eng Chem*
 7:1042-4 D '15

Magnesite

- American magnesite in California. G. H. Man-
 love. *il Iron Tr R* 58:14-15 Ja 6 '16

- Magnesite in southern Nevada. *Iron Tr R* 58:
 600 Mr 16 '16

- Sonoma magnesite mines, California. L. H.
 Eddy. *il Eng & Min J* 102:225-6 J1 29 '16

Magnesium

- Application of the paper pulp filter to the
 quantitative estimation of calcium and mag-
 nesium. S. L. Jodidi and E. H. Kellogg. *il*
J Fr Inst 181:217-32 F '16

- Measurements of resistivity and thermal
 electromotive force. E. F. Northrup. *Met &*
Chem Eng 15:193-7 Ag 15 '16

- Metallic magnesium. W. M. Grosvenor. *Met*
 & Chem *Eng* 14:262-4 Mr 1 '16; Same. *Iron*
Age 97:434-5 F 17 '16; Same cond. *J Ind &*
Eng Chem 3:275-6 Mr '16; Same cond. *Eng*
 & Min *J* 101:652-4 Ap 8 '16; Abstract. *Eng*
M 51:116-17 Ap '16

- Metallurgy of the rarer metals. J. W. Richards.
J Ind & Eng Chem 8:736-7 Ag '16; Same.
Met & Chem Eng 15:27 J1 1 '16; Same. *Sci*
Am S 82:222 S 30 '16

- Single-line spectra of magnesium and other
 metals and their ionizing potentials. J. C.
 McLennan. *il diags J Fr Inst* 181:191-207 F
 '16

Magnesium chloride

- Boiler corrosion by magnesium chloride;
 abstract. J. Scott. *Am Soc M E J* 38:1044 D
 '16

Magnesium hypochlorite

- Use of hypochlorite of magnesium as an anti-
 septic. *Sci Am* 115:263 S 16 '16

Magnesium sulphate

- Magnesium sulphate; its use in nickel plat-
 ing solutions. D. W. Robinson. *Metal Ind n s*
 14:287-8 J1 '16

Magnetic amplifiers

- Magnetic amplifier for radiotelephony. E. F. W.
 Alexanderson and S. P. Nixdorff. *il diags*
Gen Elec R 19:215-22 Mr '16

- Magnetic amplifier in radio work. F. W. Alex-
 anderson. *diag Elec W* 68:234-5 J1 29 '16

Magnetic chucks. See Chucks, Magnetic**Magnetic couplings. See Car couplings****Magnetic hand. See Artificial limbs**

Magnetic measurements

Decomposing magnetic fields into their higher harmonics. H. Weichsel. *Am Inst E E* 1'ro 34:2437-54 O '15; Discussion. 35:511-17 Ap '16
Determination of the constant of a solenoid. S. R. Williams. *diags J Fr Inst* 182:353-62 S '16

Investigation into the magnetic behaviour of iron at very high frequencies with the aid of a Poulsen-arc generator. N. W. McLachlan. *diags Inst E E J* 54:480-8 Ap 1 '16

Magnetic testing. *il diags U S Bur Stand Circ* 17:1-50 '16

See also Magnetic testing; Magnetic units; Magnetometer

Magnetic separation of ores

Improved magnetic separator. A. F. Jobke. *il Eng & Min J* 102:817-19 N 4 '16

Magnetic separation in Sardinia. C. W. Wright. *il diags Eng & Min J* 100:911-13 D 4 '15

See also Electrometallurgy

Magnetic testing

Correlation of the magnetic and mechanical properties of steel. C. W. Burrows. *il Ry R* 58:568-71 Ap 22 '16; Abstract. *Iron Age* 97:795-6 Mr 30 '16; Excerpt. *Eng M* 51:601 J1 '16

Effect of vacuum fusion upon the magnetic properties of pure open hearth iron. T. D. Yensen. *Met & Chem Eng* 14:585-6 My 15 '16; Same cond. *Iron Age* 97:1382-3 Je 8 '16

Magnetic properties of cobalt and iron-cobalt alloys; abstract. H. T. Kalmus and K. B. Blake. *Elec W* 68:966 N 11 '16

Magnetic testing. *il diags U S Bur Stand Circ* 17:1-50 '16

Magnetic testing of bars of straight or curved form. A. Campbell and D. W. Dye. *diags Inst E E J* 54:35-45 D 1 '15; Abstract. *Elec W* 67:553-4 Mr 4 '16

Magnetic units

Electric units and standards. *U S Bur Stand Circ* 60:50-3; Bibliog. 67 '16

Rationalization of the magnetic units. J. H. Dellinger. *Elec W* 68:810-12 O 21 '16; Abstract. *J Fr Inst* 182:258-9 Ag '16

What is a gauss? *Elec R & W Elec'n* 69:747 O 28 '16

Magnetism

Fluid analogies for magnetism. *Elec W* 66:1381 D 18 '15

Magnetic laws for steel and other materials. J. D. Ball. *J Fr Inst* 181:459-504 Ap '16; Same. *Gen Elec R* 19:369-90 My '16; Abstract. *Elec W* 67:777-8 Ap 1 '16

Magnetic properties of some iron alloys melted in vacuo. T. D. Yensen. *il diags Am Inst E E Pro* 34:2455-95 O '15; Discussion. 35:638-66 My '16

Mechanical analogies in electricity and magnetism. W. S. Franklin. *diags Gen Elec R* 19:264-71 Ap '16

Mechanical property of certain magnetized bodies. E. F. Northrup. *diags Met & Chem Eng* 15:624-5 D 1 '16

Photography with a horse-shoe magnet. F. F. Mace. *il Sci Am* 115:411 N 4 '16

Theories of magnetism. S. Dushman. *Gen Elec R* 19:351-8, 666-73, 736-44, 818-33, 1083-95 My. *Ag-O* D '16

See also Electromagnets; Hysteresis; Magnetic separation of ores; Magnetization

Magnetism, Terrestrial

Aurora; earth currents and magnetic disturbances. O. Klotz. *Sci Am S* 82:42-3 J1 15 '16

Lord Kelvin and terrestrial magnetism. C. Chree. *diags Inst E E J* 54:405-25 Mr 1 '16

Our earth a great magnet. L. A. Bauer. *il J Fr Inst* 181:601-28 My '16

Peculiar magnetic phenomenon. E. E. Chase. *Eng & Min J* 100:934 D 4 '15

Peculiar magnetic phenomenon. H. D. Palister. *diag Eng & Min J* 101:444 Mr 4 '16

Wehnelt cathode-ray tube magnetometer; abstract. C. T. Knipp and L. A. Welo. *diag Elec W* 68:967 N 11 '16

See also Auroras

Magnetization

How to select metals for magnets. A. E. Paige. *Elec R & W Elec'n* 69:368 Ag 26 '16; Same. *Sci Am S* 82:256 O 14 '16

Investigation into the magnetic behaviour of iron at very high frequencies with the aid of a Poulsen-arc generator. N. W. McLachlan. *diags Inst E E J* 54:480-8 Ap 1 '16

Magneto-optics

See also Polarization (light)

Magnetometers

Sensitive magnetometer; abstract. P. E. Shaw and C. Hayes. *J Fr Inst* 182:534 O '16

Wehnelt cathode-ray tube magnetometer; abstract. C. T. Knipp and L. A. Welo. *diag Elec W* 68:967 N 11 '16

Magnetos

Berkshire magneto very simple. *il diags Automobile* 35:105-6 J1 20 '16

Bosch magneto fittings. *il Horseless Age* 38:96 Ag 1 '16

Case for the magneto. N. J. Hart. *Automobile* 34:464 Mr 9 '16

Dixie magnetos for multi-cylinder motors. *il diags Horseless Age* 36:452-3 N 15 '15

Eisemann magneto models. *il Horseless Age* 37:21+ Ja 1 '16

Ignition magnetos; abstract. D. Nobili and G. Campos. *diag Elec W* 67:1114 My 13 '16

Improved magnetos. C. Mayfield. *Sci Am S* 82:317 N 11 '16

New Bosch productions. *il Horseless Age* 37:78 Ja 15 '16

Simplex a high-tension magneto. *il diag Automobile* 35:149 J1 27 '16

Magnets, Lifting. See Lifting magnets**Mail handling**

Mail conveyor for government printed matter. W. R. Metz. *plan Power* 43:149-50 F 1 '16

Recent post office improvements. *diags Sci Am S* 82:285 O 28 '16

Mail service. See Electric railway mail service;

Railway mail service

Mailing lists

Doom of the hand-picked mailing list. *il Sci Am* 115:461+ N 18 '16

Maine association of master plumbers

7th annual convention, Lewiston, Feb. 16. *Dom Eng* 74:269 F 26 '16

Maine Central railroad company

Abstract of annual report for year ending June 30, 1916. *map Ry Age* 61:538 S 29 '16

Maintenance of way master painters' association

13th annual convention, Philadelphia, Oct. 17-19. *Ry Age* 61:705-7 O 20 '16

Make-ready. See Printing, Practical—Presswork**Make-up (printing). See Printing, Practical—Imposition, etc.****Malarial fever**

Mystery of the blue gum and malaria. S. L. Bastin. *il Sci Am* 115:215 S 2 '16

Malingering

Practical application of the British workmen's compensation act. *Engineer* 122:79-80 J1 28 '16

Shammed sickness. *Sci Am* 115:424 N 4 '16

Malleable castings. See Iron founding**Malleable iron. See Cast iron****Malm process. See Zinc metallurgy****Malt extract**

Malt extract in the laundry. A. F. Musgrave. *Sci Am S* 82:107 Ag 12 '16

Maltose

Optical rotatory powers of some acetylated derivatives of maltose, cellose and lactose. C. S. Hudson and R. Sayre. *Am Chem Soc J* 38:1867-73 S '16

Man

Man's efficiency. H. M. Hobart. *Gen Elec R* 19:281 Ap '16

See also Longevity

Man, Prehistoric

Dordogne; the primitive European's cradle. J. de Sury. *il Sci Am S* 82:136-7 Ag 26 '16

Management. See Administration; Factory management; Foundry management; Machine shop management; Mine management; Office management; Organization in industry; Railroads—Management; Scientific management

Management engineers

Society of management engineers—is one needed? Eng M 51:590-2 J1 '16

Manchester, New Hampshire**Water supply**

Modernizing the Manchester water-works. diags map Eng N 75:642-4 Ap 6 '16

Mandrake

Mandrake root as a source of income. il Sci Am 115:59+- J1 15 '16

Mandrels

Mandrel for babbitting motor axle bearings. F. G. Lister. diags Elec Ry J 46:1266 D 25 '15

Manganese

Converter steel castings low in manganese. E. F. Cone. il Iron Age 98:578-80 S 14 '16

Failure of manganese valve castings; abstract. P. D. Merica and C. P. Karr. Met & Chem Eng 15:652 D 1 '16

Germany's manganese supply. Iron Age 97:1005 Ap 27 '16

High grade manganese ores of Brazil. J. T. Singewald, jr. and B. Miller. il map Iron Age 97:417-20 F 17 '16

Identification of trivalent manganese in glass. S. R. Scholes. J Ind & Eng Chem 7:1037 D 15

Manganese developments in Virginia. Eng & Min J 100:978 D 11 '15

Manganese in ground water and its removal. S. B. Applebaum. J Ind & Eng Chem 8:160-3 F '16

Manganese in South Carolina. R. W. Petre. il Eng & Min J 101:1019-20 Je 10 '16

Manganese in Tennessee. J. H. Watkins. il Eng & Min J 102:545-6 S 23 '16

Manganese ore production for 1915. Iron Tr R 59:328 Ag 17 '16

Manganese ores of Bukowina. H. K. Scott. map Iron Tr R 59:738-41 O 12 '16; Same cond. Engineer 122:332-3 O 13 '16; Same cond. Eng & Min J 102:935-7 N 25 '16

Manganese ores of Russia, India, Brazil and Chile. E. C. Harder. maps Am Inst Min E Bul 113:761-98 My '16; Discussion. 120:2222-8 D '16

Manganese ores of the Lafayette district. Minas Geraes, Brazil. J. T. Singewald, jr. and B. L. Miller. il Am Inst Min E Bul 118:1745-62 O '16

Mining of manganese ore in Virginia. il Iron Age 97:776-7 Mr 30 '16

Oxidation of manganese solutions in presence of the air. V. Lenher. Am Chem Soc J 38:638-40 Mr '16; Same. Econ Geol 11:115-17 Mr '16

Production of manganese ore largest since 1901. Eng Rec 74:85 J1 15 '16

Russian manganese industry. M. Stromberg. Eng & Min J 101:894 My 20 '16

Manganese bronze. See Bronze**Manganese steel**

Casting car wheels with manganese treads. il Foundry 44:456-60 N '16

Manganese-steel castings in the mining industry. W. S. McKee. il diag Am Inst Min E Bul 108:2399-2411 D '15; Same. Iron Tr R 57:1077-81 D 2 '15; Same cond. Iron Age 96:1362-5 D 9 '15; Discussion. Am Inst Min E Bul 113:929-30 My '16

Manganese steel welding. P. A. E. Armstrong. il diags Elec Ry J 47:1144-6 Je 17 '16

Manufacture and uses of alloy steels. H. D. Hibbard. U S Bur Mines Bul 100:22-36 '15; Same. Ry R 58:371-5 Mr 11 '16

Use of manganese steel in plain curves. M. Bernard. diags Elec Ry J 47:410 F 26 '16

Welding manganese steel. Elec Ry J 48:27-8 J1 1 '16

Mangoes

Cultivation and canning of mangoes in India. T. C. Chaudhuri. J Ind & Eng Chem 8:618-19 J1 '16; Same. Sci Am S 82:126 Ag 19 '16

Mangrove bark

Contemplated mangrove-bark trade in Brazil. Sci Am 114:430 Ap 22 '16

Manhattan. See New York (city)**Manholes**

Advantages of a circular manhole in industrial-plant systems. D. W. Blakeslee. diag Elec W 67:498 F 26 '16

Building 22 mi. of pipe sewers under one contract. il diags Eng N 75:592-5 Mr 30 '16

Cable-pulling brace for manholes. il plan Elec W 68:814 O 21 '16

Disadvantages of screen type manhole guards. G. H. McKelway. Elec W 68:671-2 S 30 '16

Electric manhole pumps and ventilators. il Elec W 68:960 N 11 '16

Freeing manholes of gas. G. H. McKelway. il Elec Ry J 47:44-5 Ja 1 '16

Installation of manhole service buses. E. B. Meyer. il plan Elec W 68:813-14 O 21 '16

Manhole guards of compact design that protect against accident. il Elec W 68:325 Ag 12 '16

Manholes built in quicksand with open caisson. Eng N 76:30-1 J1 6 '16; Elec W 68:279 Ag 5 '16

Non-clogging manhole strainer. diag Elec Ry J 47:325 F 12 '16

Simple arrangements that improve manhole ventilation. il diags Elec W 68:628-9 S 23 '16

Systematic method of cleaning manholes. Elec W 68:133 J1 15 '16

Underground distribution system at Calgary, Canada. J. N. Lightbody. il diags plan Elec W 67:431-2 F 19 '16

Manila, Philippine Islands**Industries and resources**

Electric service in the "Pearl of the orient." il Elec W 67:476-8 F 26 '16

Manila railroad

Acquisition of the Manila railroad by the government. Ry Age 61:413 S 8 '16

Manilla rope

Manilla rope in railway service. F. E. Weise. il Ry R 57:818-23 D 25 '15; Excerpts. Ry Age 59:758-9 O 22 '15; Eng & Contr 44:345-6 N 3 '15

Manometers

Liquid manometers for light pressures. R. S. Bayard. diags Power 43:697-8 My 16 '16; Same. Eng & Min J 101:942-3 My 27 '16

Measurement of air flow. A. K. Ohmes. il diags Am Soc Heat & V E 21:450-69; Discussion. 469-72 '15

Mantels

Chamber mantel, Crowninshield, Devereux house, Salem, Mass., built in 1805; measured and drawn by G. Robb. Brickb 25:65-6 Mr '16

Mantel in Fairfax house, Cameron street, Alexandria, Va.; measured and drawn by J. L. Kelster, O. J. Munson and J. A. Weber. Brickb 25:155-6 Je '16

Mantel in Huntington, Baltimore, Md.; measured and drawn by R. Buckler. Brickb 25:173-4 J1 '16

See also Fireplaces

Mantles, Gas. See Gas mantles**Manual training**

Manual training teachers study use of concrete. il Concrete 9:55 Ag '16

Manual training vs. trade training. E. H. Fish. Mach 22:505 F '16

Practical manual training in St. Paul. il Bldg Age 38:31-2 Ja '16

See also Industrial education

Manufacturers

Educating the present student and future buyer of technical products. F. D. Furman. Stevens Ind 33:109-21 Ap '16

Manufacturer legally responsible for damage. E. J. Buckley. Metal Work 85:863 Je 23 '16

Manufacturers' associations

Policies of a state manufacturers' association. G. Wrightman. Am Ind 17:18-19 N '16

Manufacturers of electrical supplies, Associated. See Associated manufacturers of electrical supplies**Manufactures**

Imitation as pioneer of the genuine. Sci Am S 81:121 F 19 '16

Manufactures—Continued

New England, world's greatest department store. *Automobile* 34:391-3 Mr 2 '16

See also *Automobiles—Manufacture*; *Bottles*; *Boxes*; *Cars*; *Chains*; *Chair factories*; *Chemical apparatus*; *Chemistry, Technical*; *Factories*; *Foundries*; *Fuel*; *Glass manufacture*; *Hardware*; *Inspection*; *Iron industry and trade*; *Leather*; *Linoleum*; *Locomotives*; *Machine shops*; *Machinery*; *Manufacturers*; *Metals*; *Munitions of war*; *Paper making and trade*; *Patents*; *Pens*; *Perfumery*; *Pottery*; *Rubber*; *Scientific management*; *Shells—Manufacture*; *Shirts*; *Soap*; *Steel industry*; *Textile industry and fabrics*; *Trade marks*; *Tubes*; *Waste products*

Cost

How volume affects the cost of manufacture. H. W. Nichols. *Textile World* 51:4341+ O 7 '16

Logical factory costs. W. E. McHenry. *Eng M* 50:733-41 F '16

Manufacturing expense distribution. N. T. Ficker. *Eng M* 49:321-6, 553-9, 862-71; 50:58-64, 254-61, 390-400, 532-9 Je-Jl, S '15-Ja '16

Redesigning to cut costs. *il Factory* 16:565-8 Je '16

See also *Cost accounting*

Manures. See *Fertilizers and manures*

Manuscripts

Conservation and restoration

Preserving old manuscripts. *Metal Work* 86:494 O 20 '16

Manuscripts, Preparation of

Preparation of copy for display advertising. *il Inland Ptr* 57:247-8 My '16

Proper arrangement of copy for catalogue composition. *Inland Ptr* 56:494-5 Ja '16

Maple sugar

Analysis of maple products. J. F. Snell and G. J. Van Zoeren. *J Ind & Eng Chem* 8:421-2 My '16

Making maple sugar. B. Adams. *il Am For* 22:158-60 Mr '16

Maple syrup

Analysis of maple products. J. F. Snell and others. *J Ind & Eng Chem* 6:216-22; 8:144-8, 241-3, 331-3 Mr '14, F-Apr '16

Maps

Cloth backing for maps. A. I. Loverson. *Eng & Min J* 101:1072 Je 17 '16; Same. *Coal Age* 9:1081 Je 24 '16

Notable map of Europe. *Sci Am* 114:74 Ja 15 '16

See also *Railroad maps*; *Relief maps*

Maps, Military

Field lithography permits rapid production of maps. D. A. Tomlinson. *Eng Rec* 73:42-3 Ja 8 '16

General staff maps. G. von Horvath. *Sci Am* 114:221+ F 26 '16

Military map data collected quickly by approximate methods. *Eng Rec* 73:295+ F 26 '16

New York's military map of the year 1778. F. B. Tucker. *map Eng N* 75:1172 Je 22 '16

Maps, Railroad. See *Railroad maps*

Marathon mill. See *Crushing machinery*

Marble

Electric power in a marble quarry. *il Engineering* 122:398-9 O 6 '16

Electrical equipment of the Alabama marble company. R. T. Brooke. *il Gen Elec R* 19:319-22 Ap '16

Electrically operated marble quarry. F. C. Perkins. *il Sci Am* S 82:88 Ag 5 '16

Electricity in marble-quarrying operations. *il Elec R & W Elec'n* 69:363-6 Ag 26 '16

Technology of marble quarrying. O. Bowles. *il diags plan U S Bur Mines Bul* 106:1-167 '16

Marble works

Technology of marble quarrying. O. Bowles. *il plan U S Bur Mines Bul* 106:94-108 '16

Marine biology. See *Algae*; *Fishes*; *Plankton*

Marine boilers. See *Boilers, Marine*

Marine borers. See *Borers (animals)*

Marine engineering

Analyzing a marine steam plant. E. N. Percy. *Int Marine Eng* 21:209-13, 254-5, 298-300, 386-8 Ap-Je, Ag '16

Determination of the principal dimensions of marine reciprocating propelling machinery. T. S. Cockrill. *Engineer* 121:320-1 Ap 14 '16

Efficiency of propulsive machinery and late developments in naval engineering. H. C. Dinger. *Am Soc M E J* 38:767-74 O '16

Experiments in natural-draft oil burning on the U. S. S. Fulton; abstract. L. R. Ford. *diags Am Soc M E J* 38:830-1 O '16

Marine engineer's kit of tools. *Int Marine Eng* 21:31 Ja '16

See also *Boilers, Marine*; *Diesel engines, Marine*; *Electricity on ships*; *Gas and oil engines, Marine*; *Marine engines*; *Naval architecture*; *Propellers*; *Ship propulsion*; *Shipbuilding*; *Steam turbines, Marine*

Marine engineers

Monument at Liverpool in honor of marine engineers. *il Power* 44:260-1 Ag 22 '16

Marine engines

Propelling machinery for ships. W. J. Drummond. *Sci Am* S 82:234-5 O 7 '16

Superheated steam in marine practice. H. B. Oatley. *Int Marine Eng* 20:548 D '15

See also *Boilers, Marine*; *Diesel engines, Marine*; *Gas and oil engines, Marine*; *Marine engineering*; *Motor ships*; *Ship propulsion*; *Ship trials*; *Steam engines*; *Steam turbines, Marine*

Fuel

Checking up the coal consumption. D. Sawyer. *diags Int Marine Eng* 21:79-80 F '16

Testing

Indicator test of triple expansion marine engines. A. C. De Lorme. *Int Marine Eng* 21:80-2 F '16

Marine mines. See *Mines, Submarine*

Marine railways

Marine railway proposed for Fox river. *diag Eng & Contr* 45:411 My 3 '16

Marine railways for hauling boats over dams. *plan Eng N* 75:469-70 Mr 9 '16

Marine steam turbines. See *Steam turbines, Marine*

Marine terminals. See *Terminals*

Marine zoology. See *Crustacea*; *Fishes*

Maritime law

See also *Merchant marine—United States*; *Seamen's act*; *Ship subsidies*; *Shipping*

Market buildings

One of the Diamond Square market houses, Pittsburgh, Pa.; view. *Arch & Bldg* 48:pl 32 Je '16

Unique plumbing equipment in Astor market, New York city. *il plan Metal Work* 84:711-13 D 3 '15

West Side market house, Cleveland, Ohio; views and plan. *Brickb* 25:pl 6-7 Ja '16

Marketing of farm produce. See *Farm produce, Marketing of*

Markets, Municipal

Carlisle, Pa., municipal market. J. C. Hiteshew. *il Munic J* 40:431-2 Mr 30 '16

Markham, Sir Clements Robert, 1830-1916

Sketch. Sci Am 114:239 Mr 4 '16

Mars (planet)

Canals of Mars. W. H. Pickering. *il Sci Am* 114:281 Mr 11 '16

Our neighbor Mars and its so-called canals. H. N. Russell. *il Sci Am* 114:248+ Mr 4 '16

Perennial Martians. *Sci Am* 114:172 F 12 '16

Remarkable surface features of the planet Mars. H. N. Russell. *il Sci Am* 114:358+ Ap 1 '16

Marshes

Draining the Roseau river swamp in Minnesota. G. H. Herrold. *il map Eng N* 75:366-8 F 24 '16

Railroad location and construction through muskeg swamp. J. L. Pickles. *Eng & Contr* 45:275-6 Mr 22 '16; Same cond. *Eng Rec* 73:327-8 Mr 4 '16; Abstract. *Eng N* 75:516-17 Mr 16 '16

See also *Drainage*

Maryland. See Roads—Maryland

Maryland state normal school, Towson, Md.
Views and plans. Brickb 25:pl 1-5 Ja '16

Masonic temples

Temple of the Scottish Rite, Washington,
D. C.; views. Arch & Bldg 48:pl 7-10 F '16

Masonry

See also Arches; Bricklaying; Bricks;
Bridges, Concrete; Concrete construction;
Dams; Efflorescence; Foundations; Mortar;
Walls

Massachusetts. See Roads—Massachusetts

Massachusetts institute of technology

Addresses at dedication of new buildings. Eng
Rec 73:834-6 Je 24 '16

Aerodynamic experiments made in M. I. T.
tunnel. il Eng N 74:1129 D 9 '15

Boston Tech opens new home. il plan Eng N
75:1201-3 Je 22 '16

Dedication of new Massachusetts institute
buildings. il Elec R & W Elec'n 68:1111; 69:
9 Je 17, J1 1 '16; Power 43:900-2 Je 27 '16;
Eng Rec 73:813 Je 17 '16; Am Soc M E J 38:
571-3 J1 '16

New Technology. il plan Eng & Min J 101:1077-
9 Je 17 '16

School of chemical engineering practice. W: H.
Walker. il Met & Chem Eng 15:138-40 Ag 1
'16

Universities and industries. R: C. Maclaurin.
J Ind & Eng Chem 8:59-61 Ja '16

University and the chemical industry; Mass.
Tech. night at meeting of New York section
of American chemical society. Met & Chem
Eng 13:939-41 D 15 '15

University to order. il Sci Am 114:583+ Je 3
'16

Wind tunnel of the Massachusetts institute of
technology; abstract. J. S. Hunsaker. Am
Soc M E J 38:499-500 Je '16

Master boiler makers' association

10th annual convention, Cleveland, May 23-26.
Ry Age 60:1185-9 Je 2 '16; Ry Mech Eng
90:311-18 Je '16

Master car and locomotive painters' association

47th annual convention, Atlantic City, Sept.
12-15. Ry Age 61:499-505 S 22 '16; Ry Mech
Eng 90:515-21 O '16

Master car builders' association

50th annual convention, Atlantic City, June
14-16. Elec Ry J 47:1139-41 Je 17 '16; Ry R
58:862-4, 913-19 Je 17-24 '16

M. C. B. association committees. Ry Age 61:
340-1 Ag 25 '16

Subjects and personnel of committees for the
1917 convention. Ry R 59:352-4 S 9 '16

Master plumbers, National association of. See National association of master plumbers

Master steam and hot water fitters, National as- sociation of. See National association of master steam and hot water fitters

Master steam and hot water fitters' association of Wisconsin

5th annual convention, Milwaukee, Jan. 20.
Dom Eng 74:141 Ja 29 '16

Materials, Building. See Building materials

Materials, Road. See Road materials

Materials of war. See Munitions of war

Mathematical drawing. See Geometrical drawing

Mathematical instruments

See also Calculating machines; Drawing
instruments; Measuring instruments; Plani-
meters; Slide rule; Surveying instruments

Mathematics

See also Calculating machines; Differen-
tial equations; Fractions, Continued; Men-
suration; Metric system; Multiplication;
Navigation; Numerals

Formulas

Finding moment of inertia of lenticular sec-
tion. W: Vetter. Eng N 76:995-6 N 23 '16

Mathematicians and computers solve sphere
problem. Eng N 75:518-20 Mr 16 '16

Sphere cut by any two planes; volume of
slice. J. E. Boyd. Eng N 75:1228 Je 29 '16

Visits of inspector Brown. J. E. Terman.
Power 44:691-2 N 14 '16

Tables, etc.

Table of fractional equivalents to nearest
sixty-fourths. S: Kauffman. Mach 22:1082 Ag
'16

See also Logarithms

Mathewson, Edward Payson, 1864-

Tribute to E. P. Mathewson. Eng & Min J
102:775-6 O 28 '16

Matter

See also Atomic theory; Atoms; Capillar-
ity; Compressibility; Dissociation; Elec-
trons; Molecules; Physics; Radioactivity;
Solids; Specific gravity; Viscosity

Mattresses (hydraulic engineering). See Rivers— Bank protection

Matzoon

Study of the stereo-isomerism of a fermen-
tation lactic acid. S. J. Thomas. J Ind & Eng
Chem 8:821-3 S '16

Mauran, John Lawrence, 1866-

John Lawrence Mauran, sixteenth president
of the Institute. R. C. Sturgis. por Am Inst
Arch J 4:2-3 Ja '16

Mausoleums. See Tombs

Mayas

Oldest American dated antiquity made in 100
B. C. Sci Am S 82:150 S 2 '16

Mazda lamps. See Electric lamps, Tungsten

Mazenet, Dámaso, 1852-1916

Sketch. por Gen Elec R 19:413-14 My '16

Measurement. See Area measurement; Calori- meters and calorimetry; Color measure- ment; Electric measurement; Gages; Gas measurement; Gas meters; Magnetic mea- surements; Measuring instruments; Meters; Micrometers; Pitot tube; Pyrometers and pyrometry; Steam flow; Steam meters; Stream flow; Stream measurement; Survey- ing; Water flow; Water meters; Weights and measures

Measurement, Electric. See Electric measure- ment

Measurement, Pressure. See Pressure measure- ment

Measurements, Physical. See Physical measure- ments

Measures. See Mensuration; Weights and mea- sures

Measuring instruments

Set of proposed standard numerals for the
scales of measuring instruments. A. P.
Trotter. Inst E E J 54:273-4 F 1 '16; Ab-
stract. Am Soc M E J 38:354-5 Ap '16
Standard figures for measuring instruments.
A. P. Trotter. Sci Am S 82:53 J1 22 '16

See also Bevel protractor; Measuring
machines; Micrometers; Sine bar; Slide rule;
Square (instrument)

Measuring machines

Methods of measurement. D. T. Hamilton. il
diags Mach 23:100-8 O '16

See also Measuring instruments

Meat

Smoke oven for curing meat at home. il Sci
Am 114:430 Ap 22 '16

See also Cookery (meat); Meat extracts;
Slaughtering and slaughterhouses

Meat extracts

Estimation of sugar in meat products, par-
ticularly extracts. W. B. Smith. J Ind &
Eng Chem 8:1024-7 N '16

Mechanical draft

Advantages of forced draft for peak loads. Elec
W 68:68 J1 8 '16

Core-oven mechanical draft installation. il
diags Metal Work 84:763-4 D 17 '15

Electrically operated draft fan. E: T. Binns.
diag Power 44:360 S 5 '16

Forced draft for peak loads. I. L. Kentish-
Rankin. Elec W 68:583 S 16 '16

Operation of boilers with balanced draft. R. I.
Elkin. Elec W 68:522-3 S 9 '16

Performance of boilers with balanced draft.
R. I. Elkin. diags Elec W 68:321-2 Ag 12 '16

Mechanical draft—Continued

Trouble with fan regulator. J. C. Hawkins. Power 41:763-4 N 28 '16

See also Blowers; Boilers; Draft; Fans. Mechanical

Mechanical drawing

Development of the art of draughting into the business of drafting. F. H. Higbee. Eng & Contr 45:589 Je 28 '16

Kinks for the building mechanic. W. S. Wilkin. diags Bldg Age 38:33-5 D '16

Perspective working drawings in Ohio highway standards. diags Eng N 75:802 Ap 27 '16

See also Drafting room practice; Drawing instruments; Geometrical drawing; Graphic methods; Graphic statics; Lettering; Machinery—Design; Pattern making

Mechanical engineering

Development of mechanical engineering in India. A. Chatterton. Engineer 122:44-5 J1 14 '16

See also Automobile engineering; Boilers; Electric engineering; Engineering; Engines; Friction; Fuel; Locomotives; Lubrication and lubricants; Machine shop practice; Machine tools; Machinery; Marine engineering; Mechanics; Power plants; Power transmission; Steam engineering; Steam engines

Mechanical engineers

Corps of mechanical engineers. A. E. Berri-man. Engineer 121:396 My 12 '16

State directors named for industrial preparedness committee. Am Soc M E J 38:399 My '16

Mechanical engineers, American society of. See American society of mechanical engineers

Mechanical engineers, Institution of. See Institution of mechanical engineers

Mechanical fans. See Fans, Mechanical

Mechanical handling

Battery carriage for supplies. A. C. Daman. diag Eng & Min J 102:867 N 11 '16

Concrete road-building methods yield profits in cash instead of in plant. H. E. Breed. il plan Eng Rec 73:202-4 F 12 '16

Development of appliances for handling raw materials and merchandise at ports and other large centres of traffic. J. P. Griffith. Engineer 122:366-7, 389-91 O 27-N 3 '16

Economy in scrap yard arrangement. il plan Iron Age 96:1403-5 D 16 '15

Handling materials in manufacturing plants. R. L. Streeter. il diags Eng M 50:222-46, 401-28, 546-71, 682-707, 869-96; 51:81-105, 226-56 N '15-My '16

Hints for trucking contractors; appliances to facilitate the handling of motor truck loads. il Eng & Contr 46:338-9 O 18 '16

Home-made plant that helped build the Ken-sico dam. W. F. Smith. il Eng N 75:326-7 F 17 '16

Intra-shop transportation. N. Whichello. il plan Iron Tr R 58:823-4 Ap 13 '16

Lifting a 210-ton converter. E. E. Thum. il diag Eng & Min J 101:396-7 F 26 '16

Material handling monorail. N. Winchello. il plan Iron Age 97:191-2 Ja 20 '16

Mechanical equipment used in the port of New Orleans. W. Von Phul. il plan Am Soc M E J 28:515-25; Discussion. 525-8 J1 '16

Plant improvements of Ashland, Ky., steel works. il Iron Age 98:452-3 Ag 31 '16

Portable machinery for package freight handling. R. H. Rogers. il Gen Elec R 19:534-40 Je '16

Quick-operating rig for grab buckets uses two-drum hoist. W. G. Broadhurst. diags Eng Rec 73:621-2 My 6 '16

Simpler methods of moving materials. il Factory 16:176+, 264+, 412+, 474+, 17:104+, 176+, 310+, 450+, 568+, 718+ F-My, J1-D '16

Special plant for handling spoil from shafts. il Eng N 75:324 F 17 '16

Status of cargo handling in American marine terminals. J. A. Jackson and R. H. Rogers. Gen Elec R 19:127-32 F '16; Same cond. Int Marine Eng 21:356-7 Ag '16

Two loops in rope save time in snubbing buckets down incline. il Eng Rec 73:430 Mr 25 '16

Unique way of handling railroad scrap. F. L. Prentiss. il diag Iron Age 97:885-8 Ap 13 '16

See also Ash handling; Cement handling; Chutes; Coal handling; Conveying machinery; Cotton handling; Cranes, derricks, etc.; Dumping appliances; Electric trucks in factories, freight terminals, etc.; Freight handling; Grain handling; Hoisting; Lifting magnets; Loading and unloading; Lumber handling; Mail handling; Mine haulage; Mine hoisting; Motor trucks; Ore handling; Steam jets; Telferage; Trucks

Cost

Economics of material handling in manufacturing plants. R. Trautschold. il Eng M 51:368-80, 528-36, 734-46; 52:231-48, 372-6 Je-Ag, N-D '16

Mechanical movements

Concerning measurements of the coefficient of cyclic variation; abstract. J. von Rohonyi. Am Soc M E J 38:92-3 Ja '16

See also Mechanics

Mechanical stokers. See Stokers, Mechanical

Mechanics

Bending of a shaft having two bearings; abstract. J. Cabrol. Am Soc M E J 38:185-6 F '16

Law of virtual velocities. diag Mach 22:897 Je '16

Mechanical analogies in electricity and magnetism. W. S. Franklin. diags Gen Elec R 19:264-71 Ap '16

See also Aeronautics; Bridges—Load; Engineering; Friction; Gases; Graphic statics; Hydraulics; Hydrostatics; Liquids; Load (mechanics); Machinery; Perpetual motion; Physics; Power; Power transmission; Pressure; Pulleys; Rolling; Speed; Steam engines; Strains and stresses; Strength of materials; Torsion

Mechanics' liens

Courage plus co-operation to cure bad debts. K. C. Cardwell. Dom Eng 73:333-4 D 11 '15

Mechanotherapy

Curing by machinery. H. Gilmore. il Sci Am 114:60 Ja 8 '16

Mechanotherapy at home. diags Sci Am S 81:381 Je 10 '16

Medals. See John Fritz medal

Medals, Safety. See Safety medals

Medical apparatus. See Medical instruments and apparatus

Medical botany. See Botany, Medical

Medical brotherhood for the furtherance of international morality

War and the medical profession. Sci Am 114:216 F 26 '16

Medical climatology. See Climatology, Medical

Medical electricity. See Electrotherapeutics

Medical examinations. See Physical examinations

Medical folk-lore

Medicine as practiced by the Chinese. W. W. Cadbury. Sci Am S 82:342-3 N 25 '16

Medicines used by the ancient Romans. J. T. Llewellyn. Sci Am S 81:391 Je 17 '16

Turquoise and its supposed medical properties. R. I. Geare. il Sci Am S 81:344 My 27 '16

Medical instruments and apparatus

Curing by machinery. H. Gilmore. il Sci Am 114:60 Ja 8 '16

New apparatus for internal diagnosis. J. Boyer. il Sci Am 115:55 J1 15 '16

Training of maimed soldiers. diags Engineer 121:472-3 Je 9 '16

Medicine

See also Antiseptics; Diagnosis; Diseases, Industrial; First aid in illness and injury; Medical instruments and apparatus; Surgery

China

Medicine as practiced by the Chinese. W. W. Cadbury. Sci Am S 82:342-3 N 25 '16

Medicine, Military

Medical needs of modern armies. *Sci Am S* 81:127 F 19 '16

See also European war—Medical and sanitary affairs; First aid in illness and injury; Military hygiene; Surgery, Military; War—Relief of sick and wounded

Medicine, Preventive. *See* Public health**Medieval education.** *See* Education, Medieval**Medieval machinery.** *See* Machinery, Medieval**Meerschm**

Source and uses of meerschm. *Sci Am S* 81: 261 Ap 22 '16

Melbourne**Parks**

Zoological gardens of Melbourne. R. W. Shufeldt. *il plan Sci Am S* 81:136-7 F 26 '16

Water supply

Water supply of Melbourne. *il diags map Engineer* 121:291-2, 374-5 Ap 7, My 5 '16

Melibiose

Preparation of melibiose. C. S. Hudson and T. S. Harding. *Am Chem Soc J* 37:2734-6 D '15

Mellon institute. *See* Pittsburgh university, Mellon institute**Mellor & Meigs, architects**

Examples of the work of Mellor & Meigs. H. D. Eberlein. *il plans Arch Rec* 39:212-46 Mr '16

Memphis, Tennessee**Bridges**

New Mississippi river bridge. *il diags Ry Age* 61:645-9 O 13 '16

One span of Memphis bridge falsework washed out. *Eng N* 74:1291; 75:43 D 30 '15-Ja 6 '16

Flood control

Memphis flood protection. *diags map Eng N* 75:890-4 My 11 '16

Harbor

Island of mud that threatens Memphis harbor. *il Sci Am* 114:447 Ap 29 '16

Menominee range. *See* Iron mines and mining—Michigan**Mensuration**

Formula for obtaining the volume and lateral or convex surface of an ungula of right, regular cylinder. H. B. Wrigley. *diags J Ind & Eng Chem* 8:522-3 Je '16

How to find area of any plane figure. *Mach* 23:164 O '16

Laying out diagonal strip in rectangle. W: W. Johnson. *diag Mach* 23:159 O '16

Table converting millimeters to inches. T: A. Rance. *Foundry* 44:20a Ja '16

Table of feet in decimals of a mile. N. J. Brady. *Eng N* 74:1279 D 30 '15

Useful feet-miles conversion table for highway engineers. C. E. Swain. *Eng Rec* 73:482 Ap 8 '16

See also Area measurement; Gages; Gaging; Metric system; Surveying; Weights and measures

Menus

Food selection. C. F. Langworthy. *Sci Am S* 81:230-1 Ap 8 '16

Mercaptopyrimidines

Researches on pyrimidines; the mechanism of the action of bromine on 2-mercaptopyrimidines. T. B. Johnson and A. W. Joyce. *Am Chem Soc J* 38:1557-66 Ag '16

Mercerizing

Machinery for bleaching, dyeing, and printing cotton fabrics. *il Engineer* 121:393 My 12 '16

Recovering caustic from mercerizing washings. H. Austin. *Textile World* 51:1559 Mr 25 '16

Merchant marine

Government aid to merchant shipping in principal countries of the world. G. M. Jones. *U S Bur For & Dom Com* 119:1-265 '16

Will the shipbuilding boom last ten years? destructive effect of European war. H. L. Aldrich. *Int Marine Eng* 21:483 N '16

See also Ships; Steamboat lines

United States

American bureau of shipping. *Int Marine Eng* 21:251-2 My '16

American merchant marine. F. J. Nolan. *Int Marine Eng* 21:317-19 J1 '16

American merchant marine—re-creation of a vast new industry. *Eng M* 50:501-4 Ja '16

Analysis of the shipping bill; salient features of the administration measure for upbuilding the American merchant marine. "Old Scotch." *Int Marine Eng* 21:107-9 Mr '16

Fair play for American shipping. *Sci Am* 115: 452 N 18 '16

Government controlled merchant marine. R. W. Woolley. *Am Ind* 16:18 Ja '16

House shipping bill. *Sci Am* 114:574 Je 3 '16

Imperative need for ships owned by Americans. W: C. Redfield. *Eng M* 50:661-5 F '16

Merchant marine from a southerner's viewpoint; abstract. W: Gatewood. *Int Marine Eng* 21:38 Ja '16

New and constructive policy for upbuilding the American merchant marine. B. N. Baker. *Int Marine Eng* 21:109-12 Mr '16

Our merchant marine; a report of a special committee of the Boston chamber of commerce. *Sci Am S* 81:70-1, 94-6 Ja 29-F 5 '16

Preparedness and our merchant marine. *Sci Am* 114:120 Ja 29 '16

President's message. W. Wilson. *Ry R* 57:762-3 D 11 '15

Pressing need for a merchant marine. S. G. Gibboney. *Eng M* 50:505-8 Ja '16

Profits from old vessels. M. Woolley. *Int Marine Eng* 21:224-5 My '16

Shipbuilding and shipping situation; views of leaders in the marine field on business conditions and the upbuilding of the American merchant marine. *Int Marine Eng* 21:98-106 Mr '16

See also Ship subsidies; Shipping—United States

Mercuric chloride

Equilibria of mercuric chloride with other chlorides. G. A. Linhart. *Am Chem Soc J* 38:1272-80 J1 '16

Mercurous chloride. *See* Calomel**Mercury**

Concentrating quicksilver ores. *Eng & Min J* 101:1033 Je 10 '16

Critical temperature of mercury. *Sci Am S* 80: 393 D 18 '15

Electrolytic determination of mercury in mercury oleates. B. L. Murray. *J Ind & Eng Chem* 8:257 Mr '16

Experiments bearing on the secondary enrichment of mercury deposits. T. M. Broderick. *Econ Geol* 11:645-51 O '16

Landers mercury furnace. *diag Eng & Min J* 102:634 O 7 '16; *Met & Chem Eng* 15:657 D 1 '16

Mercury from zinc blende; abstract. F. Juretzka. *Eng & Min J* 102:66 J1 1 '16

Occurrence of mercury in cobalt ores. G. H. Clevenger. *Econ Geol* 10:770-3 D '15

Oceanic quicksilver mill. *il Eng & Min J* 102: 512-13 S 16 '16

Potential of the mercury electrode against mercurous ion. G. A. Linhart. *diag Am Chem Soc J* 38:2356-61 N '16

Production of quicksilver in California in 1915. *Eng & Min J* 101:508 Mr 18 '16

Quicksilver statistics. *Eng & Min J* 101:67-8 Ja 8 '16

Smelting of mercury ores. W. H. Landers. *il Eng & Min J* 102:630-3 O 7 '16

See also Amalgams

Mercury alarm

Mercury column alarm for standpipes. W. E. Haseltine. *diag Am Water Works Assn J* 3:104-6 Mr '16

Mercury compounds

Laboratory notes on the standardization of the mercurials. D. K. Strickland. *J Ind & Eng Chem* 8:253-7 Mr '16

Mercury vapor lamps. *See* Electric lamps, Mercury vapor**Mercury vapor oscillators.** *See* Oscillators**Mergenthaler, Ottmar, 1854-1899**

Master minds of type and press. J: S. Ritenour. *Inland Ptr* 56:662-3 F '16

Merz-Price protective device

Design of high-pressure distribution systems.
B. Price. *Inst E E J* 54:490-3 Ap 1 '16

Mesa Verde national park

Ancient cliff dwellings of the Mesa Verde. M. Daniels. *il Am Inst Arch J* 4:384-8 S '16
Mesa Verde and Casa Grande national parks. M. Daniels. *il Am For* 22:139-45 Mr '16
Sun temple in Mesa Verde park. C. H. Butman. *il Sci Am S* 81:312-13 My 13 '16

Mesabi range. See *Geology—Minnesota*; *Iron mines and mining—Minnesota***Mesopotamia**

Ancient Mesopotamia and the irrigation system that made it a fertile territory. A. Selwyn-Brown. *map Sci Am S* 81:599 My 13 '16

Future of Mesopotamia to the Near East. W. Willcocks. *Engineer* 122:310 O 6 '16

Messhouses. See *Construction camps***Metabolism**

Metabolism of insects. A. Lameere. *Sci Am S* 82:178-9, 202 S 16-23 '16

See also *Nutrition*

Metal cleaning

Automatic washing machine. *il Metal Ind n s* 14:440 O '16
Preparation of iron and steel surfaces for painting. *Ry Age* 61:19-20 Jl 7 '16
Reversed electro-plating methods used to clean castings in stove works. *il Elec W* 68:815 O 21 '16

Metal coating

Coating metals with zinc. *il Iron Tr R* 58:813-14 Ap 13 '16
How to copper-coat gray iron castings. *Foundry* 44:6 Ja '16
Metal-spraying process. *diag Eng & Min J* 102:111 Jl 8 '16
Powdered zinc used for coating structural steel. *Eng Rec* 73:33 Ja 1 '16
Protective coatings for metal. H. B. C. Allison. *Gen Elec R* 18:878-80 S '15; Same. *Eng & Contr* 44:263-4 O 6 '15; Same. *Sci Am S* 81:7 Ja 1 '16
Schoop metal spray process. *Gen Elec R* 19:730 Ag '16

See also *Electroplating*; *Galvanizing*

Metal coloring

Coloring of metals. *Metal Work* 86:73 Jl 21 '16

See also *Bronzing*; *Copper—Coloring*

Metal corrosion. See *Corrosion and anti-corrosives***Metal cutting**

Accuracy required in roughing cuts. *Mach* 22:793 My '16
Armor plate cutting with the oxy-hydrogen flame. A. F. Mitchell. *il Eng Soc W Pa* 31:711-18 N '15
Comparison of oxy-hydrogen and oxy-acetylene cutting. W. P. Schuck. *il Met & Chem Eng* 15:218-19 Ag 15 '16
Cutting metals with the oxy-acetylene flame. H. Cave. *il Eng M* 51:827-36 S '16
Gas welding and cutting; discussion. *Eng Soc W Pa* 31:719-26 N '15
Handy cutting tool for sheet metal. *il Iron Age* 98:1225 N 30 '16
High temperature flames in metal working. H. R. Swartley, jr. *Iron Age* 96:1122 N 11 '15; Same. *Sci Am S* 80:403 D 25 '15
How an a. c. arc was used in scrapping three Corliss engines and generators. G. W. Tef-feau, jr. *Elec W* 68:527 S 9 '16
Metal cutting with oxy-acetylene gas. S. W. Miller. *Mach* 22:682-3 Ap '16
Oxy-acetylene cutting practice. B. P. Legare. *il Elec Ry J* 48:108-9 Jl 15 '16
Use of gases for welding and cutting in steel foundries. J. B. Henry. *Eng Soc W Pa* 31:767-70 N '15
Wrecking heavy machinery by cutting torches. *il Eng N* 76:1040-1 N 30 '16

See also *Cutting machines*; *Copper cutting*; *Oxyacetylene flame*; *Rail cutting*; *Screw machines*; *Shears*; *Steel cutting*; *Thread cutting*; *Trepanning*

Metal finishing

See also *Brass—Finishing*; *Grinding and polishing*

Metal furniture. See *Furniture, Metallic***Metal lath**

Plaster base of wire and terra cotta. *il Concrete* 9:71 Ag '16

Metal prices. See *Metal trade***Metal protection**

Asbestos sheathing protects steel overhead bridge. *diag Eng Rec* 74:556 N 25 '16
Calorizing as applied to power plant equipment. *il Met & Chem Eng* 15:498-9 O 15 '16
Cement-gun at the factory of the Ford motor co., Detroit. J. V. Schaefer. *il Concrete* 9:155-6 N '16
Coal tar helps maintenance of metal flumes. F. D. Pyle. *Eng Rec* 74:622 N 18 '16
Coating steel at Grand Central terminal with cement gun. W. F. Jordan. *il Eng N* 75:1008-10 My 25 '16
Conduit evolution. A. E. Braddell. *Elec R & W Elec'n* 68:253-4 F 5 '16
Guarding steel lock gates from galvanic action. E. C. Sherman. *il Eng N* 75:210 F 3 '16
Gypsum and its effect on embedded steel. V. G. Marani. *il Eng N* 76:229 Ag 3 '16
Insuluminum soot-blower caps. *Power* 43:45 Ja 11 '16
Method for coating iron or steel with lead. *Dom Eng* 73:338 D 11 '15
New glazing construction. *diag Concrete Cem* 7:218 D '15
Painting of galvanized iron and tin. H. A. Gardner. *il Metal Work* 86:178-9 Ag 11 '16
Protection of iron by electroplating; abstract. O. P. Watts and P. L. DeVerter. *Met & Chem Eng* 15:475-6 O 15 '16
Protective coatings for metal. H. B. C. Allison. *Gen Elec R* 18:878-80 S '15; Same. *Eng & Contr* 44:263-4 O 6 '15; Same. *Sci Am S* 81:7 Ja 1 '16
Voltaic corrosion and prevention. T. J. Rogers. *Int Marine Eng* 21:250-1 My '16
See also *Corrosion and anti-corrosives*; *Galvanizing*; *Metal coating*

Metal spinning

Electrical manufacturing operations. C. L. Lucas. *il diag Mach* 22:743-5 My '16

Metal trade

Buying and selling nonferrous metals of South America. L. Vogelstein. *Eng & Min J* 101:292-6 F 12 '16
Chart of metal prices for 1914-1915. *Metal Ind n s* 14:56 Ja '16
Chart showing fluctuations in prices of pig tin, lake copper, spelter, lead and galvanized sheets, 1905-1915. *Iron Tr R* 58:84a Ja 6 '16
Course of metal prices since 1879—annual averages; chart. *Eng & Min J* 101:47 Ja 8 '16
Imports and exports of metals in 1915. *Eng & Min J* 101:446 Mr 4 '16
Metal market in 1915. C. Lundberg. *Iron Age* 97:12-13 Ja 6 '16
Metal market review for 1915—outlook for 1916. J. J. Archer. *Metal Ind n s* 14:53-4 Ja '16
Metal prices in 1914 and 1915, monthly averages; charts. *Eng & Min J* 101:44-5 Ja 8 '16
Metal, tin-plate and sheet prices for eighteen years; with supplement. *Iron Age* 97:22 Ja 6 '16
Metals and alloys in the steel industry; review of conditions in 1915. D. Browne. *Iron Age* 97:23+ Ja 6 '16
Non-ferrous metals make records. *Iron Tr R* 59:233-4 Ag 3 '16
Pig iron and metal products of the United States; calendar years 1906-1914. *Metal Ind n s* 14:55 Ja '16
Prospects for the metals. *Eng & Min J* 102:839-40 N 4 '16
Retrospective review of 1915—outlook for 1916. *Metal Ind n s* 14:26-7 Ja '16
Why not a metal exchange? *Eng & Min J* 101:863-4 My 13 '16
See also *Copper industry and trade*; *Iron industry and trade*; *Lead industry and trade*; *Scrap metal*; *Sheet metal trade*; *Steel industry and trade*; *Tin plate*; *Zinc industry and trade*

Metal trades association, National. See *National metal trades association*

Metal waste

- Economic methods of preparing metal shavings for packing. R. Philip. *diags Am Soc M E J* 38:191-3 F '16; Same. *Metal Ind n s* 14:384-5 S '16
- Grinding brass ashes in the conical ball mill. A. F. Taggart and R. W. Young. *il Am Inst Min E Bul* 110:435-42 F '16; Same. *Iron Tr R* 58:440-3 F 24 '16; Same. *Foundry* 44:102-5 Mr '16
- How a large manufacturing company disposes of its old metal. J. M. Bateman. *il Metal Ind n s* 14:420-2 O '16; Abstract. *Metal Work* 86:406 S 29 '16
- How brass ashes are economically reclaimed. A. F. Taggart. *flow sheet Foundry* 44:428-31 O '16; Same cond. *Iron Age* 98:818-19 O 12 '16; Excerpts. *Met & Chem Eng* 15:651 D 1 '16
- Melting aluminum chips. H. W. Gillett and G. M. James. *U S Bur Mines Bul* 108:1-88 '16
- Metal recovered from scraps and drosses. *Metal Ind n s* 14:288 J1 '16
- Plant for reclaiming old metals. B. K. Price. *Iron Tr R* 58:447 S 7 '16
- Reclamation of magnesium from turnings. J. Coulson. *Metal Ind n s* 13:155-7 N '15; Same. *Foundry* 44:23-5 Ja '16
- Recovery of white metals from drosses. A. Bregman. *diags Metal Ind n s* 14:103-6 Mr '16
- Secondary metals in 1915. *Eng & Min J* 102:785-6 O 28 '16
- Sources of metal loss in copper refining. L. Addicks. *Met & Chem Eng* 15:11-15 J1 '16; Abstract. *Elec W* 68:185-6 S 2 '16
- Use of borings in cupola operations. J. A. Murphy. *Iron Age* 98:700-1 S 28 '16; Same. *Foundry* 44:453-4 N '16; Discussion. *Iron Age* 98:701 S 28 '16; Same. *Foundry* 44:405 O '16
- Waste and abuse of brass and bronze. R. R. Clarke. *Ry Mech Eng* 90:361-2 J1 '16
- Waste of less common metals in war. P. E. Barbour. *Am Soc M E J* 38:447-8 Je '16
- See also Detinning; Flue dust; Scrap metal; Tailings; Zinc dust
- Metal work**
- See also Brass founding; Brass work; Bronze; Bronzes; Bushings; Dies; Electroplating; Forging; Foundry practice; Goldsmithing; Hardware; Ironwork; Jewelry; Keys and keyways (machinery); Metal spinning; Pickling (metals); Plating; Punching machinery; Sheet metal work; Solder and soldering; Tanks; Tin plate; Welding
- Metal work, Architectural.** See Sheet metal work, Architectural
- Metal work, Artistic**
- Art casting by a new process. R. G. Skerrett. *il Sci Am* 114:225 F 26 '16
- Art of engraving and embossing. *il Metal Ind n s* 14:160-2, 330-1 Ap, Ag '16 (to be cont)
- Influence of style on the art metal work of modern times. A. F. Saunders. *il Metal Ind n s* 14:63-4 F '16
- Relics of ancient Costa Rica. W. L. Beasley. *il Sci Am* 113:520-4 D 11 '15
- Metal working machinery**
- Forming sheet metal by the rolling process. *il diags Mach* 22:850-1 Je '16
- Pressing and stamping metals. O. Smith. *il Eng M* 51:855-68; 52:83-9, 213-24 S-N '16
- See also Forging machinery; Machine tools; Wire-working machinery
- Metallic furniture.** See Furniture, Metallic
- Metallography**
- Cause and effect of ghost lines in large steel forgings; abstracts. J. O. Arnold. *Engineer* 120:498 N 26 '15; *Am Soc M E J* 38:88 Ja '16; *Iron Age* 97:326 F 3 '16; *Sci Am S* 81:239-40 Ap 8 '16; *Iron Tr R* 59:1103-6 N 20 '16
- Causes underlying steel heat hardening. A. Sauveur. *Iron Tr R* 58:132-4 Ja 13 '16
- Chemical and physical properties of foundry irons. J. E. Johnson, Jr. *il Met & Chem Eng* 15:530-7, 588-97, 642-6 N 1-D 1 '16
- Comparisons between electrolytic and two varieties of arsenical lake copper with respect to strength and ductility in cold-worked and annealed test strips. C. H. Mathewson and E. M. Thalheimer. *il diags Am Inst Min E Bul* 115:1185-1224 J1 '16
- Converter steel castings low in manganese. E. F. Cone. *il Iron Age* 98:578-80 S 14 '16
- Crystal twinning by direct strain. C. A. Edwards. *il diags Iron Tr R* 58:341-5 F 10 '16; Abstract. *Am Soc M E J* 38:264-5 Mr '16
- Crystallization in cold-worked steel. R. H. Sherry. *il Iron Age* 98:76-9 J1 13 '16
- Determination of grain size in metals. Z. Jeffries, A. H. Kline and E. B. Zimmer. *il Am Inst Min E Bul* 108:2359-63 D '15; Same cond. *Iron Age* 97:306-7 F 3 '16; Same cond. *Iron Tr R* 58:1317-20 Je 15 '16; Discussion. *Am Inst Min E Bul* 113:883-6 My '16
- Development of practical substitutes for platinum and its alloys, with special reference to alloys of tungsten and molybdenum. F. A. Fahrwald. *il diags Am Inst Min E Bul* 109:103-19 Ja '16; Discussion. 113:1000-3 My '16
- Effect of nitrogen in steel. B. Strauss. *il Iron Age* 97:432-3 F 17 '16
- Erosion of guns—the hardening of the surface. H. Fay. *il Am Inst Min E Bul* 120:2237-51 D '16
- Failure of structural brasses. P. D. Merica and R. W. Woodward. *il Metal Ind n s* 13:495-8 D '15
- Formation of columnar and of free crystals during solidification. H. M. Howe. *diag Met & Chem Eng* 15:623-4 D 1 '16
- Grain growth. H. M. Howe. *Am Inst Min E Bul* 120:2111-17 D '16
- Grain growth phenomena in metals. Z. Jeffries. *il Am Inst Min E Bul* 119:2063-73 N '16
- Inclusions of alumina in steel. A. Sauveur. *il Iron Tr R* 59:179-80 J1 27 '16; Same. *Met & Chem Eng* 98:180-1 J1 27 '16; Same. *Met & Chem Eng* 15:149-51 Ag 1 '16
- Iron-boron and iron-carbon alloys; with equilibrium diagram. N. Tschisnewsky and A. Herdt. *il Iron Age* 98:336-7 Ag 24 '16
- Liquid contraction in cast iron. G. Hailstone. *il diag Iron Age* 98:241-3 Ag 3 '16
- Malleable iron; its characteristics, uses and abuses. E. Touceda. *il Iron Tr R* 58:495-8, 546-50 Mr 2-9 '16; Same cond. *Foundry* 44:231-5 Je '16
- Manufacture and properties of semi-steel. D. McLain. *il Iron Age* 98:702-4 S 28 '16
- Metallographic description of ancient Peruvian bronzes. C. H. Mathewson. *Sci Am S* 81:142-3 F 26 '16
- Metallography of steel for United States naval ordnance; requirements of the Bureau of ordnance. H. E. Cook. *il Am Inst Min E Bul* 110:375-400 F '16; Same. *Iron Tr R* 58:379-88 F 17 '16; Discussion. *Am Inst Min E Bul* 113:917-26 My '16
- Method for distinguishing sulphides from oxides in the metallography of steel. G. F. Costock. *il Am Inst Min E Bul* 120:2103-10 D '16
- Microstructural changes accompanying the annealing of cast bronze. H. S. Rawdon. *il U S Bur Mines Tech Pa* 60:1-17 '16; Same cond. *J Ind & Eng Chem* 8:109-14 F '16; Excerpts. *Metal Ind n s* 14:207-8 My '16
- Normal fracture of malleable iron. E. Touceda. *il Iron Tr R* 59:575-7 S 21 '16; Same cond. *Iron Age* 98:576-7 S 14 '16
- Occurrence and significance of twinned crystals in electrolytic copper. H. S. Rawdon. *il Met & Chem Eng* 15:406-8 O 1 '16
- Presence of alumina in steel. G. F. Costock. *il Iron Tr R* 59:563-7 S 21 '16; Same cond. *Iron Age* 98:582-4 S 14 '16
- Present-day knowledge of metals and the engineer and suggestions for a systematic course of fundamental instructions. C. E. Chase. *Sci Am S* 82:162-3 S 9 '16
- Properties of ladle test ingots. J. R. Cain and H. S. Rawdon. *il diags Iron Tr R* 58:1419-21 Je 29 '16
- Recrystallization after plastic deformation. H. M. Howe. *Am Inst Min E Bul* 118:1851-60 O '16; Same cond. *Iron Tr R* 59:1051-3+N 23 '16
- Recrystallization of cold-worked alpha brass on annealing. C. H. Mathewson and A. Phillips. *il Am Inst Min E Bul* 109:1-50 Ja '16; Abstract. *Am Soc M E J* 38:183-4 F '16; Discussion. *Am Inst Min E Bul* 113:987-99 My '16
- Science testing of malleable and cast steel. A. Harley. *il Foundry* 44:61-7 F '16

Metallography —Continued

- Segregated streaks in steel rails. G. F. Comstock. *il Iron Tr R* 59:311-6 N 9 '16; Same cond. *Ry R* 59:732-4 N 25 '16
- Standard test specimens of zinc bronze (Cu 88, Sn 10, Zn 2); microstructure. H. S. Rawdon. *il diags U S Bur Stand Tech Pa* 59:47-67 '16
- Steel castings and physical properties. E. F. Cone. *il Iron Age* 97:1310-13 *Je* 1 '16
- Steel scrap in various foundry mixtures. G. S. Evans. *il Iron Age* 97:1541-5 *Je* 29 '16
- Stress produced by burning-in manganese bronze. P. D. Merica and C. P. Karr. *il diag Foundry* 44:431-3 O '16
- Surface tension effects in the inter-crystalline cement in metals and the elastic limit. F. C. Thompson. *Engineer* 121:376 *My* 5 '16
- System tungsten-molybdenum. F. A. Fahrenwald. *il Am Inst Min E Bul* 114:1049-55 *Je* '16
- Testing malleable and cast steel. A. Harley. *il Iron Tr R* 59:121-7 *Jl* 20 '16
- Testing of dredge bucket pins. R. A. Young. *il Eng & Min J* 102:377-9 *Ag* 26 '16
- Tungsten-molybdenum equilibrium diagram and system of crystallization. Z. Jeffries. *il diag Am Inst Min E Bul* 115:1225-36 *Jl* '16
- Use of titanium in steel castings. W. A. Janssen. *il Iron Tr R* 59:507-11 *S* 14 '16; Discussion. *Iron Age* 98:646, 673 *S* 21 '16
- Vacuum-fused iron with special reference to effect of silicon. T. D. Yensen. *il Am Inst Min E Bul* 110:483-512 *F* '16
- Wear of cast-iron cylinders and liners. *il Iron Age* 97:1492-4 *Je* 22 '16

See also Alloys; Annealing; Steel

Metallurgical analysis

- Analysis and assay of zinc retort-residue. *Met & Chem Eng* 14:200-1 *F* 15 '16
- Electro-analytical method for the determination and separation of the metals of the copper-tin group. E. P. Schoch and D. J. Brown. *diags Am Chem Soc J* 38:1660-81 *S* '16
- Rapid control method for the determination of sulfur in pyrites cinder. H. C. Moore. *J Ind & Eng Chem* 8:26-8 *Ja* '16
- Rapid method for the analysis of red lead and orange mineral. J. A. Schaeffer. *il J Ind & Eng Chem* 8:237-8 *Mr* '16

See also Assaying; Steel—Analysis

Metallurgical apparatus

- Bardill dressing apparatus. J. O. Bardill. *diag Eng & Min J* 100:969 *D* 11 '15
- Dry amalgamator. L. A. Palmer. *il Met & Chem Eng* 14:715 *Je* 15 '16
- Electrolysis of fused alkali chlorides, patented by J. Pfeiffer and F. Ott. *diag Met & Chem Eng* 15:216 *Ag* 15 '16

See also Agitators; Classifiers; Concentrating tables; Concentrators; Dorr thickener

Metallurgical plants

- Central mill of the North Star mines co. L. A. Palmer. *il diag Met & Chem Eng* 14:35-8 *Ja* 1 '16
- Flotation of silver-lead mineral at a New South Wales mine. H. H. Smith. *il diag flow sheet Eng & Min J* 100:953-7 *D* 11 '15
- Metallurgical plants of Arizona; a brief summary of the extent of metallurgical practice in Arizona, and the itinerary of the tour of the American institute of mining engineers. *map Met & Chem Eng* 15:167-71 *Ag* 15 '16
- Metallurgical works tramways. W. C. Capron and C. R. Kuzell. *il diags Eng & Min J* 102: 613-20 O 7 '16
- Mine and mill plant of the Inspiration consolidated copper co. H. K. Burch. *flow sheet il diags plan Am Inst Min E Bul* 117:1468-9, 1482-1500 *S* '16; Same. *Eng & Min J* 102: 411-15, 457-60 *S* 2-9 '16
- Mining and metallurgical construction in 1915. *Eng & Min J* 101:75-8 *Ja* 8 '16
- Nevada Wonder mill. A. C. Daman. *il Eng & Min J* 102:927-8 N 25 '16
- New sulphuric acid plant at Donora. Pa. T. N. Harris. *il plan Met & Chem Eng* 15:313-18 *S* 15 '16

See also Bag houses; Cyanide plants; Iron works; Smelting works; Steel works

Accidents

- Accidents at metallurgical works in the United States during the calendar years 1913 and 1914. A. H. Fay. *U S Bur Mines Tech Pa* 124: 1-27 '15

Cost

- Estimating construction costs. F. W. Foote. *Eng & Min J* 102:857-60 N 11 '16

Metallurgists

- Distinguished American metallurgists; portraits. *Eng & Min J* 102:628-9 O 7 '16

Metallurgy

- Improved mining and metallurgy an aid to conservation. L. D. Ricketts. *Eng & Min J* 101:291-2 *F* 12 '16
- Metallurgical progress in Peru. M. Fort. *Met & Chem Eng* 14:308 *Mr* 15 '16
- Metallurgy of the rarer metals. J. W. Richards. *J Ind & Eng Chem* 8:736-40 *Ag* '16; Same. *Sci Am S* 82:222-4 *S* 30 '16; Abstract. *Iron Age* 97:1558 *Je* 29 '16; Abstract. *Metal Ind n s* 14:289 *Jl* '16
- Problems in physical metallurgy at the Bureau of standards. G. K. Burgess. *J Fr Inst* 182: 19-35 *Jl* '16
- Recovery of cadmium from ores, furnace products, flue dusts and bag house dusts, patent by R. H. Stevens. *Met & Chem Eng* 15:656-7 *D* 1 '16
- Recovery of white metals from drosses. A. Bregman. *diags Metal Ind n s* 14:103-6 *Mr* '16
- Research in metallurgy. R. Hadfield. *Engineer* 121:423 *My* 19 '16

See also Alloys; Assaying; Blast furnaces; Chemistry, Technical; Copper metallurgy; Cyanide process; Electrometallurgy; Filters and filtration (metallurgy); Flotation process; Furnaces, Metallurgical; Gold metallurgy; Hydrometallurgy; Iron metallurgy; Kilns; Lead metallurgy; Magnetic separation of ores; Metallurgical analysis; Metallurgical apparatus; Metallurgical plants; Metals; Ore treatment; Refractory materials; Silver metallurgy; Smelting; Stamp mills; Steel metallurgy; Tin metallurgy; Titanium; Zinc metallurgy

Metals

- Decay of metals; abstracts. C. H. Desch. *Eng M* 51:435-8 *Je* '16; *Sci Am S* 82:182-3 *S* 16 '16; *Mach* 23:131 O '16
- Future of the world's metal supplies. D. M. Liddell. *Eng M* 50:759-65 *F* '16
- Grain growth phenomena in metals. Z. Jeffries. *il Am Inst Min E Bul* 119:2063-73 N '16
- Institute of metals annual general meeting. *Engineer* 121:275-6, 292-4 *Mr* 31-Apr 7 '16
- Metal tie-up in electrolytic refining. L. Addicks. *Met & Chem Eng* 15:305-12 *S* 15 '16
- Metastability of metals. A. Vosmaer. *Met & Chem Eng* 13:535-6, 953-4 *S* 1, *D* 15 '15; Same. *Sci Am S* 80:410; 81:59 *D* 5 '15, *Ja* 22 '16
- Rare metals. *Metal Ind n s* 14:106 *Mr* '16
- Solid solutions. *Sci Am S* 82:38-9 *Jl* 15 '16
- Using steam heat for melting the softer metals; abstract. R. Cramer. *J Fr Inst* 182: 510 O '16

See also Alloys; Amalgams; Annealing; Assaying; Babbitt metal; Corrosion and anti-corrosives; Electrometallurgy; Foundry practice; Geology; Hardening; Hardness; Hardware; Metal trade; Metallography; Metallurgy; Mines and mineral resources; Ore deposits; Pattern making; Pickling (metals); Slag; Smelting; Solder and soldering; Strength of materials; Welding; Wire; also names of metals and alloys, e.g. Aluminum, Antimony, Brass, Bronze, Cerium; Chromium, Cobalt, Copper, Germanium, Gold, Gun metal, Iron, Lead, Manganese, Mercury, Nickel, Platinum, Steel, Tin, Titanium, Tungsten, Vanadium, Zinc

Analysis

See Metallurgical analysis

Specifications

- U. S. navy specifications for non-ferrous metals. *Foundry* 44:462a N '16

Metals—Continued

Testing

Cross-relations of strengths of metals in tension, compression, torsion and transverse loading. G. B. Upton. Sibley J 30:85-9 D '15; Excerpt. Mach 22:548 Mr '16

Endurance of metals under alternating stresses; abstract. B. P. Haigh. Am Soc M E J 38:344-6 Ap '16

Finding blowholes with the X-rays. C. H. Tonamy. il diags Foundry 43:455-6 N '15; Same. Iron Tr R 58:346 F 10 '16; Same cond. Iron Age 96:1054-5 N 4 '15

Impact or shear tests. J. Younger. Am Soc M E J 38:1001-2 D '16

Magnetic and other properties of iron-silicon alloys, melted in vacuo. T. D. Yensen. il diags Ill U Eng Exp Sta Bul 33:1-67 '15

Magnetic studies of mechanical deformation in certain ferromagnetic metals and alloys. H. Hanemann and P. D. Merica. il Am Inst Min E Bul 108:2371-85 D '15; Discussion. 113:930-2 My '16

Relation of ductility to elongation. H. Friedmann. diags Mach 22:508-9 F '16

Standard test specimens of zinc bronze (Cu 88, Sn 10, Zn 2). C. P. Karr and H. S. Rawdon. il diags U S Bur Stand Tech Pa 59:1-67 '16; Excerpts. Foundry 44:229-30 Je '16

Test endurance and impact strength of metals. D. J. McAdam, jr. Eng Rec 74:49 J1 8 '16

See also Hardness; Steel—Testing

Metals, American institute of. See American institute of metals

Metals, Cutting of. See Metal cutting

Metals, Institute of. See Institute of metals

Metalwork. See Metal work

Metamorphism

Gilsonite and grahamite; the result of the metamorphism of petroleum under a particular environment. C. Richardson. J Ind & Eng Chem 8:493-4 Je '16; Same. Sci Am S 82:310 N 11 '16

Metastability. See Allotropy

Metchnikoff, Elie, 1845-1916

Dean of bacteriologists. por Sci Am 115:98 J1 29 '16

Meteorites

Meteorites; wonderful messages from the sky. Sci Am S 82:181 S 16 '16

Meteorological instruments. See Hygrometers; Thermometers and thermometry

Meteorology

Meteorology of the moon. W. H. Pickering. il Sci Am S 81:188-90 Mr 18 '16

See also Air; Atmospheric electricity; Auroras; Fog; Glacial period; Halos (meteorology); Phenology; Rain; Sleet; Snow; Weather forecasts

Terminology

Sleet—glaze—rime. Sci Am 115:296 S 30 '16

Meters

Bailey integrator. diag Power 44:164 Ag 1 '16

Bailey meter for steam, water and gases. il diags Met & Chem Eng 14:456-7 Ap 15 '16; Elec Ry J 47:660 Ap 1 '16; Elec W 67:895 Ap 15 '16; Heat & Ven 13:54-6 My '16; Ry Mech Eng 90:323-4 Je '16

Flow meter. diag Elec W 68:384 Ag 19 '16

Mason condensation meter. il Heat & Ven 13:50-1 Je '16

Republic flow meter. il Elec W 67:1185 My 20 '16

Republic meter that registers flow at a distance. il Heat & Ven 13:47-8 Je '16

See also Boiler meters; Electric meters;

Gas meters; Steam meters; Viscosimeters;

Water meters

Reading

Factograf camera. Munic Eng 51:23 J1 '16

Reading gas and electric meters simultaneously effects a saving of \$200 per month. Elec R & W Elec'n 68:285 F 12 '16

Testing

Practical tests of steam-flow and water meters. Power 43:361 Je 13 '16

Meters, Electric. See Electric meters

Methane. See Firedamp

Methodist book concern building, Cincinnati, Ohio

Methods and equipment used in constructing the Methodist book concern building. il diags Eng & Contr 45:433-4 My 10 '16

Methyl fructoside

Crystalline β -methyl fructoside and its tetracetate. C. S. Hudson and D. H. Brauns. Am Chem Soc J 38:1216-23 Je '16

Methyl iodide

Reaction of both the ions and the nonionized forms of acids, bases and salts; the reaction of methyl iodide with sodium, potassium and lithium ethylates at 0°. B. M. Brown and S. F. Acree. Am Chem Soc J 38:2145-56 O '16

Methylethylenediamine

Researches on amines; the structure of vitamine; synthesis of methylethylenediamine. T. B. Johnson and G. C. Bailey. Am Chem Soc J 38:2135-45 O '16

Metric system

Beware the metric-system movement! Eng & Min J 101:700 Ap 15 '16

English lineal measures. J. Stormonth and others. Engineer 122:253, 280, 301 S 22-O 6 '16

Learning the value of the metric system. Sci Am 115:4 J1 1 '16

Metric agitation. L. D. Burlingame. il diags Mach 22:964-9 J1 '16

Metric system; advantages. R. Hesse. Eng & Min J 102:761 O 21 '16

Metric system again—take warning! Eng & Min J 101:703 Ap 15 '16

Move for uniformity in systems of measurement. Eng M 51:749-50 Ag '16

Obstacles to metric system. C. Sellers, jr. Iron Age 98:1045-6 N 2 '16

Pan-American use of the metric system. F. Brooks. Boston Soc C E J 3:65-9 F '16; Discussion. 3:377-403 S '16

Practical application of the metric system. Mach 22:585 Mr '16

Table converting millimeters to inches. T. A. Rance. Foundry 43:502a; 44:20a D '15-Ja '16

Terms used in the cotton industry; conversion tables. W. A. G. Clark. U S Bur For & Dom Com 105:12-19 '15

Why the metric system? B: H. Case. Eng & Min J 101:950-1 My 27 '16

See also Weights and measures

Metropolis, Illinois

Bridges

Bridge across the Ohio river at Metropolis. Ry R 59:38-40 J1 8 '16

Ohio river bridge. il diags Ry Age 60:1025-7 My 12 '16

Railway bridge over Ohio at Metropolis, Ill. diags Eng N 76:151-4 J1 27 '16

Mexico

Conditions in Mexico. Eng & Min J 102:339-42 Ag 19 '16

El Oro district, Estado de Mexico, during 1915. Eng & Min J 101:209-10 Ja 29 '16

Mexico; its political situation, its resources, and its military strength. il map Sci Am 114:450-1+ Ap 29 '16

Problem of Mexico. Sci Am 114:444 Ap 29 '16

Quien viva? Eng & Min J 102:762-3 O 21 '16

Santa Ysabel massacre. il Eng & Min J 101:190-4 Ja 22 '16

See also Geology—Mexico; Gold mines and and mining—Mexico; Latin America; Mines and mineral resources—Mexico; Petroleum—Mexico; Railroads—Mexico; Silver mines and mining

Antiquities

Oldest American dated antiquity made in 100 B. C. Sci Am S 82:150 S 2 '16

Foreign relations

Mexican situation. Sci Am 115:4 J1 1 '16

Law

Another Mexican decree. Eng & Min J 102:600 S 30 '16

Carranza's latest mining decree. Eng & Min J 102:717-18 O 14 '16

Mexico—Continued

Railroads

See Railroads—Mexico

Meyer, Balthasar Henry, 1866-

Sketch. por Ry Age 60:785 Ap 7 '16

Meyer, Victor, 1848-1897

Victor Meyer—his life and work. B. Horowitz. bibliog J Fr Inst 182:363-91 S '16

Miami copper company

Block method of top slicing of the Miami copper co. E. G. Deane. plan Am Inst Min E Bul 117:1515-18 S '16; Discussion. 120:2172 D '16

Flow sheet of the Miami mill. Met & Chem Eng 15:544 N 1 '16

Miami copper co. data. flow sheet Eng & Min J 102:710 O 14 '16

Miami river

Battle over the Miami flood-prevention plans. H. M. Chittenden. map Eng N 76:906-10 N 9 '16

Mica

Mica-insulated armature coils. Elec W 67:51-2 Ja 1 '16

Mica; its history, production and utilization. H. Zeitler. diags Sci Am S 81:284-6 Ap 29 '16

Mice

Spinning cotton by mouse power. Sci Am 115:343 O 7 '16

Michigan. See Roads—Michigan

Michigan, Lake

Currents of Lake Michigan and their influence on the climate of the neighboring states. C. M. Townsend. map W Soc E J 21:293-305; Discussion. 305-9 Ap '16

Michigan Central railroad company

Annual report for 1915. Ry Age 60:872, 931-3 Ap 21 '16

Michigan gas association

25th annual meeting, Detroit, Mich., Sept. 21-22. Gas Age 38:356-61 O 2 '16; Am Gas Light J 105:221-3 O 2 '16

Michigan university

Martha Cook building. il plans Brickb 25:41-2, pl 13-16 F '16

Microbes. See Bacteriology

Micrometers

Micrometer limit gage attachment. il Sci Am S 82:325 N 18 '16

Micrometer reading device. diag Met & Chem Eng 14:231 F 15 '16

Micro-organisms

Inhibiting action of certain spices on the growth of microorganisms. F. M. Bachmann. diag J Ind & Eng Chem 8:620-3 J1 '16

See also Bacteriology

Microphones

Microphones and microphonic contacts; abstract. P. O. Pedersen. diags Elec W 67:554-5, 611-12 Mr 4-11 '16

Microphotography. See Photomicrography

Microscopes and microscopy

How bacteria were first seen. E. W. Bowell. Sci Am S 81:156 Mr 4 '16

Microscope fine adjustment. E. A. Hutton. Sci Am S 82:35 J1 15 '16

Petrographic microscope in analysis. F. E. Wright. Am Chem Soc J 38:1647-58 S '16

Quantitative microscopy. Eng & Min J 102:957 N 25 '16

See also Metallography; Photomicrography

Micro-weighing. See Weighing

Migration of birds. See Birds, Migration of

Mildew

Making yarns proof against mildew. J. H. Lester. Textile World 51:1007 F 5 '16

Mildew proofing of cotton goods. Textile World 51:3457 Ag 5 '16

Miles City, Montana

Central station heating by Miles City municipal plant. G. C. Pruett. Munic Eng 51:2-4 J1 '16

Militarism

See also United States—Defenses

Military aeronautics. See Aeronautics, Military

Military architecture

See also Bomb-proof cellars; Fortification; Military engineering

Military art and science

Finding your way at night without a compass. W. A. Tilney. il Sci Am S 81:220-2 Ap 1 '16

Logistics. G. C. Thorpe. Sci Am 115:263 S 16 '16

Modern artillery and future development. L. Cresap. il Iron Age 97:44-7 Ja 6 '16

New use for the seismograph. R. G. Skerrett. Sci Am 114:284 Mr 11 '16

Passing of the tented city; how the aeroplane scout has affected the military camp. E. C. Crossman. il Sci Am 115:10+ J1 1 '16

Visibility of distant objects in warfare. Sci Am S 81:371 Je 10 '16

See also Aeronautics, Military; Armies; Arms and armor; Artillery; Automobiles in war; Camps, Military; Cavalry; Electricity in war; Explosives, Military; Firearms; Fortification; Grenades; Intrenchments; Liquid fire; Mines, Military; Munitions of war; Naval art and science; Shells (projectiles); Shrapnel shells; Sieges; Signals and signaling, Military; Tactics; Target practice; Telescopic sights; Torpedoes; Transportation, Military; War games; Wireless telegraph in war

Military automobiles. See Automobiles, Military

Military camps. See Camps, Military

Military communication. See Military telegraph; Military telephone; Wireless telegraph in war

Military education

Industrial militarism; government training to develop the individual. J. L. Mahin. Sci Am S 81:150-1 Mr 4 '16

Preparedness and the schoolboy. Sci Am 113:534 D 18 '15

Technical students should receive military instruction. W. Clay. Eng Rec 73:179-80 F 5 '16

See also Naval education

Military engineering

Battle tactics and the paved highway. P. S. Bond. Munic Eng 50:207-8 My '16

Engineer reserve bill. W. B. Parsons. Eng Rec 73:254-5 F 19 '16

Engineering in war. W. V. Judson. W Soc E J 20:671-9 O '15

Field-artillery service should attract engineers. E. McCullough. Eng N 76:353-6 Ag 24 '16

Field fortifications, sieges and demolitions. T. M. Robins. diags plan Eng & Min J 101:514-20 Mr 18 '16; Abstract. Eng Rec 73:335-6 Mr 4 '16

Military ponton bridges used in the United States army. P. E. Barbour. diags Eng N 76:156-7 J1 27 '16

Mining and military engineers past and present. Eng & Min J 100:997 D 18 '15

National defense—for engineer and contractor. P. S. Bond. il Eng Rec 73:312-16, 351-4, 394-7, 422-5, 447-50, 480-2, 511-13, 543-5, 575-7 Mr 4-Apr 29 '16

Organization and duties of engineers in war. T. M. Robins. Eng Rec 73:263-4 F 19 '16

See also Camps, Military; Electricity in war; Explosives, Military; Fortification; Intrenchments; Military lighting; Military reconnaissance; Military telegraph; Military telephone; Mines, Military; Roads, Military; Transportation, Military

Bibliography

Military reading for civilian engineers. Am Inst Min E Bul 109:xiii-xvii Ja '16; Same. Eng & Min J 101:257-9 F 5 '16; Same. Eng N 75:506-7 Mr 16 '16

Military equipment and supplies

Optical appliances in warfare. C. R. Darling. J Fr Inst 181:723-5 My '16

Portable machine shop for U. S. army. il Elec W 68:263 Ag 5 '16

Portable machine shops for the United States army. W. S. Doxsey. il Iron Tr R 59:220-2 Ag 3 '16

See also Munitions of war

Military explosives. See Explosives, Military

Military hygiene

- Alcohol in war. A. Elster. *Sci Am S* 81:179 Mr 18 '16
 Heart in warfare. *Sci Am S* 81:196 Mr 25 '16
 Providing sanitary facilities for soldiers. H. L. Alt. *Metal Work* 86:465-6 O 13 '16
 Providing water-supply for a large militia camp. *il map Eng N* 76:498-503 S 14 '16
 Water supply for troops in the field. J. J. Hinman, jr. *bibliog Eng & Contr* 46:29-31 J1 12 '16

See also European war—Medical and sanitary affairs; Medicine, Military; War—Relief of sick and wounded

Military lighting

- Lighting in the army; with discussion. E. D. Ardery. *Illum Eng Soc* 11:659-68 no 7 '16
 Report of the committee on progress; war. *Illum Eng Soc* 11:721-4 no 8 '16
 Searchlights in war. *il Sci Am S* 81:69 Ja 29 '16
 War illuminations. *il Sci Am S* 81:148 Mr 4 '16

Military locomotives. *See* Locomotives, Military**Military maneuvers.** *See* War games**Military maps.** *See* Maps, Military**Military medicine.** *See* Medicine, Military**Military mines.** *See* Mines, Military**Military preparedness.** *See* United States—Army; United States—Defenses**Military reconnaissance**

- War game. G. von Horvath. *maps Sci Am* 114:278+ Mr 11 '16

Military roads. *See* Roads, Military**Military service**

See also Recruiting and enlistment

Military signals. *See* Signals and signaling, Military**Military supplies.** *See* Armies—Commissariat**Military surgery.** *See* Surgery, Military**Military telegraph**

- Field cables keeping up communication between divisions of an army. *il Sci Am S* 81:276 Ap 29 '16

See also Wireless telegraph in war

Military telephone

- War telephones; field operator's difficulties. C. Darling. *Sci Am S* 80:403 D 25 '15
 What the telephone means to the fighting men of Europe. *il Sci Am* 115:239 S 9 '16

Military tents. *See* Tents, Military**Military topography**

- General staff maps. G. von Horvath. *Sci Am* 114:221+ F 26 '16

Military tractors. *See* Tractors, Military**Military training.** *See* Military education**Military transportation.** *See* Transportation, Military**Militia.** *See* United States—Militia**Militia, Naval.** *See* United States—Naval militia**Milk**

- Milk from beans—a new industry of China. *Sci Am* 115:285 S 23 '16
 Pasteurized milk. *Sci Am S* 81:165 Mr 11 '16
 Recent studies of pasteurized and boiled milk. *Sci Am S* 81:131 F 26 '16

Analysis

- Comparison of methods for the determination of casein in milk. C. B. Hersey. *J Ind & Eng Chem* 8:335-6 Ap '16

Transportation

- New England milk case. *Ry Age* 61:208-9 Ag 4 '16

Milk, Condensed

- Determination of sucrose in condensed milk. G. W. Knight and G. Formanek. *J Ind & Eng Chem* 8:28-31 Ja '16
 History of condensed milk. P. Bartholow. *Sci Am S* 82:239-40 O 7 '16
 Polariscopic determination of sugar in condensed milk. R. O. Brooks. *J Ind & Eng Chem* 8:1022-4 N '16

Milk coolers

- Milk cooler for the dairyman. *plan Metal Work* 86:109 J1 28 '16

Milking machines

- Electricity in rural communities. *il Elec R & W Elec'n* 68:410-14 Mr 4 '16

Milling cutters

- Number of teeth in end-mills. *diag Mach* 22:891 Je '16

Milling machinery. *See* Crushing machinery**Milling machines**

- Adjustable-head bench milling machine. *il Iron Age* 98:23 J1 6 '16
 Automatic duplex slot milling machine. *il Iron Age* 98:132 J1 20 '16
 Bench milling machine for small parts. *il Iron Age* 96:1560 D 30 '15
 Bowen milling machine. *il diag Mach* 22:913-14 Je '16
 Duplex keyseat milling and cottering machine. *il Ry Mech Eng* 90:427 Ag '16
 Gorton fuse ring milling machine. *il diags Mach* 22:808 My '16
 Gorton fuse routing machine. *il Mach* 22:432 Ja '16
 Hand and power feed milling machine. *il Iron Tr R* 58:764 Ap 6 '16
 Is continuous milling always the most rapid method? G. H. Cheney. *diags Mach* 22:693-4 Ap '16
 Kent-Owens milling machine. *il Mach* 22:432 Ja '16
 Labor saving devices in the machine shop. A. A. Dowd. *il diags Eng M* 51:198-203 My '16
 Lundvall fuse ring milling machines. *il Mach* 22:1096-7 Ag '16
 Milling Buick aluminum crank-cases. E. K. Hammond. *il diags Mach* 22:543-8 Mr '16
 National manufacturing milling machine. *il diags Mach* 22:903-4 Je '16; *Iron Age* 97:1316 Je 1 '16
 Newton horizontal milling machine. *il Mach* 22:350-1 D '15
 Newton milling machine for cutting worms. *il Iron Age* 97:659-60 Mr 16 '16; *Iron Tr R* 58:764 Ap 6 '16
 Newton vertical milling machine. *il Mach* 22:431-2 Ja '16; *Ry Mech Eng* 90:47-8 Ja '16
 Newton vertical milling machine facing off ends of shell blanks. *il Mach* 22:341-2 D '15; *Iron Tr R* 57:1087 D 2 '15
See also Gear cutting machines; Machine tools

Milling of ores. *See* Crushing machinery; Ore treatment**Mills, Ogden L.**

- Estate of Ogden L. Mills. H. D. Smith. *il plans Brickb* 25:197, 200-3, pl 113-18 Ag '16

Mills, Robert. 1781-1855

- Robert Mills architect and engineer. Mrs. A. Gallagher. *por il Arch Rec* 40:584-8 D '16

Mills and millwork

- Ingenious devices and methods used on the construction of a reinforced concrete feed mill. *il diag Concrete* 9:148-9 N '16
 Water mill built on a boat. *il Sci Am* 114:103 Ja 22 '16

See also Cotton mills; Factories; Machinery; Manufactures; Rolling mills; Sawmills; Scientific management; Textile factories; Textile mills; Tin plate

Milwaukee, Wisconsin**Architecture**

- Milwaukee revisited; Northwestern mutual life insurance company's last new building. P. B. Wight. *il plans Arch Rec* 40:128-44 Ag '16

Lighting

- Milwaukee's extensive street-lighting plan. *il Elec W* 67:645-8 Mr 18 '16
 Milwaukee's new municipal street lighting system. F. H. Bernhard. *il diag Munic J* 40:645-8, 683-5 My 11-18 '16
 New street-lighting system of Milwaukee. *il Elec R & W Elec'n* 68:579-82, 626-31 Ap 1-8 '16

Politics and government

- Milwaukee bureau of municipal research. *Munic J* 39:916 D 16 '15

Sanitary affairs

- Ash collection in Milwaukee. *Munic J* 40:77-8 Ja 20 '16

Milwaukee, Wis.—Continued**Sewerage**

- Activated sludge in Milwaukee. T. C. Hatton. *Munic J* 40:785-7 Je 8 '16; Discussion. 40:824-5 Je 15 '16
- Conclusions on activated sludge tests. T. C. Hatton and W. R. Copeland. *Eng Rec* 73:489 Ap 8 '16
- Fundamental principles of the activated sludge process of sewage treatment. T. C. Hatton. *Eng & Contr* 45:235-6 Mr 8 '16
- Large activated-sludge plant at Milwaukee, Wis. *il diags Eng N* 76:686-8 O 12 '16
- Results and conclusions from a year's operation of the activated sludge sewage treatment plant of Milwaukee. T. C. Hatton. *Eng & Contr* 46:407-9 N 8 '16; Same cond. *Munic J* 41:510-12 O 26 '16
- Summary and latest results of experimental work on activated sludge at Milwaukee, Wis. T. C. Hatton. *Eng & Contr* 45:104-8 F 2 '16; Same cond. *Eng N* 75:262-3, 306-8 F 10-17 '16; Excerpts. *Eng Rec* 73:255 F 19 '16
- Winter experience with the activated sludge process of sewage treatment at Milwaukee—sludge disposal. W. R. Copeland. *Eng & Contr* 45:386-7 Ap 26 '16
- World's first full-scale plant for the treatment of sewage by the activated sludge process. T. C. Hatton. *diags plan Eng & Contr* 44:322-7 O 27 '15; Same cond. *Eng Rec* 72:481-4 O 16 '15; Abstract. *Munic J* 39:776-7 N 18 '15; Abstract. *Engineer* 121:58-9 Ja 21 '16
- Year of activated sludge at Milwaukee, Wis. G. W. Fuller. *Eng N* 74:1146-7 D 9 '15

Streets

- Methods and cost of treating old macadam streets with asphaltic oil. S. E. Bates. *il Eng & Contr* 46:4-6 Jl 5 '16
- Milwaukee electric railway & light company**
- Co-operative activities of railway employees. B. Hall. *il Elec Ry J* 48:441-3 S 9 '16

Mineoscope

- New duplicating attachment. *il Ry Age* 60:163-4 Ja 28 '16

Mine accidents

- Accidents at Anaconda's mines and their prevention. R. S. Foster and W. C. Douglass. *il Eng & Min J* 101:593-4 Ap 1 '16
- Explosion at Granite Mountain shaft. *Eng & Min J* 100:958 D 11 '15
- Failure through carelessness. *Coal Age* 9:564-5, 660-1, 740-1, 828-9, 996-7 Ap 1, 15, 29, My 13, Je 10 '16
- Injury to mine timbermen. A. L. H. Street. *Eng & Min J* 100:913 D 4 '15
- Metal-mine accidents in 1914. *Eng & Min J* 101:571-2 Mr 25 '16
- Metal-mine accidents in 1915. *Eng & Min J* 102:757 O 21 '16
- Metal-mine accidents in the United States during the calendar year 1914. A. H. Fay. *U S Bur Mines Tech Pa* 129:1-96 '16; Excerpt (Accidents classified by mining methods). *Eng & Min J* 101:633-6 Ap 8 '16
- Prevention of mine accidents. F. W. Sperr. *Coal Age* 10:758-9 N 4 '16

See also Coal mines and mining—Accidents and explosions; Coal mines and mining—Safety measures; Firedamp; Mine explosions; Mine fires; Mine rescue work; Mining engineering—Safety measures; Safety lamps

Mine accounting

- Accounting of machine coal. *Coal Age* 10:122-156-7, 195, 278 Jl 15-29, Ag 12 '16
- Keeping mine-supply accounts. J. Kenvin. *Coal Age* 9:22-3 Ja 1 '16
- Little brass check in the Crow's Nest. E. B. Field. *Coal Age* 9:488-90 Mr 18 '16
- Mine accounting for small mines. J. E. Chapman. *Am Inst Min E Bul* 111:663-9 Mr '16
- Mine cost system. A. E. Hall and G. C. McFeely. *Eng & Min J* 101:688-90 Ap 15 '16
- Report for shaft sinking. J. W. Powell. *Coal Age* 9:447 Mr 11 '16

Bibliography

- Reference list to books and magazine articles. A. Slobod. *Special Libraries* 7:172-7 D '16

Mine air

- Canary is not a safe test of deoxygenated air. *Coal Age* 8:842-3 N 20 '15

Gasoline mine locomotives in relation to safety and health. O. P. Hood and R. H. Kudlich. *bibliog il diags U S Bur Mines Bul* 74:1-78 '15

See also Mine explosions; Mine gases; Mine ventilation

Mine animals. See Live stock**Mine buildings**

- Cheap change or dry house. R. S. Bonsib. *plan Eng & Min J* 102:505-6 S 16 '16
- Lackawanna washhouses. C. M. Young. *il Coal Age* 9:747-8 Ap 29 '16
- Main Island Creek coal co.'s plant at Omar, W. Va. W. T. Jones. *il plan Coal Age* 10:682-3 O 21 '16
- Mine-plant office. *diags plans Eng & Min J* 101:1113 Je 24 '16; Same. *Coal Age* 10:110 Jl 15 '16
- Miners' wash and change houses. J. H. White. *il diags plan U S Bur Mines Tech Pa* 116:1-23 '15; Same. *Metal Work* 85:155-7, 223-5 Ja 28, F 11 '16
- Modern mine-plant design. M. L. Hyde. *diags plans Coal Age* 8:742-7, 790-4 N 6-13 '15
- Modern wash house for miners. J. A. Garcia. *il Coal Age* 9:112-14 Ja 15 '16; Same cond. *Eng & Min J* 101:477-8 Mr 11 '16
- Pithead baths in some foreign collieries. J. Y. Dunlop. *il plan Metal Work* 86:99-10 N 17 '16
- Roofing of mine buildings. J. W. Latimer. *Coal Age* 10:226-7 Ag 5 '16

See also Miners' houses

Mine cages. See Mine hoisting**Mine cars**

- Automatic drop-bottom mine car. *il Coal Age* 10:25-6 Jl 1 '16
- Automatic endgate. *diags Coal Age* 9:886-7 My 20 '16
- Coal mine dynamometer car. *diag Coal Age* 10:759-60 N 4 '16
- Comparative friction test of two types of coal mine cars. P. B. Liebermann. *il diag Am Inst Min E Bul* 114:1057-65 Je '16; Excerpts. *Eng & Contr* 46:55 Jl 19 '16; Discussion. *Am Inst Min E Bul* 118:1875-8 O '16
- Design for mine car and rolling side-dump tippie. R. F. Smith. *il diags Eng & Min J* 101:182-4 Ja 22 '16
- Disappearing barney. *diags Coal Age* 9:882 My 20 '16
- Doorless coal-mine cars and rotary dumps. F. C. Cornet. *Coal Age* 9:111 Ja 15 '16
- Efficiency with new mine cars. F. M. Heidelberg. *il Eng & Min J* 102:904-5 N 18 '16
- Home-made car-door lifter. *plans Coal Age* 9:238 F 5 '16
- Mine-car resistance. E. B. Wilson. *Coal Age* 8:1056 D 25 '15
- Mine-car slippers. F. J. Immler. *diag Coal Age* 9:798 My 6 '16
- Mine car trucks with open-cap wheels. *il Coal Age* 9:585-6 Ap 1 '16
- Refuse-stacking car. J. P. Vogel. *il Coal Age* 9:211 Ja 29 '16
- Successful car building. *il Coal Age* 9:636 Ap 8 '16
- Successful car wheel. *diags Coal Age* 9:625 Ap 8 '16

See also Mine haulage

Mine construction

See also Mine buildings; Mine shafts; Mine timbering; Mine tipples

Mine costs. See Mining costs**Mine dams**

- Calculation of mine dams. A. G. Morlock. *diags Coal Age* 9:534-5 Mr 25 '16
- Flooded-mine proposition. *Coal Age* 8:854-5, 1029 N 20, D 18 '15
- Thickness of mine dam. *Coal Age* 10:199 Jl 29 '16
- Underground dams and bulkheads. A. E. Hall and G. McFeely. *diags Eng & Min J* 102:501 S 16 '16

Mine doors

- Double-acting, self-closing mine trapdoor. *il Coal Age* 9:508-9, 548 Mr 18-25 '16

Mine drainage

- Mining and milling practice at Santa Gertrudis. H. Rose. *diags Am Inst Min E Bul* 116:1307-8 Ag '16; Same. *Eng & Min J* 102:271 Ag 26 '16

Mine drainage—*Continued*

Tapping high-head mine water through a stuffing-box. A. H. Lewis. diag Eng N 75: 127-8 Ja 20 '16

See also Mine pumping; Shaft sinking

Mine employees. *See* Miners**Mine equipment**

Italy, a field for American mine supplies. C. W. Wright. Eng & Min J 102:233-4 Jl 29 '16

Mine warehouse system. E. I. Roberts. plan Coal Age 9:115-17, 154-6 Ja 15-22 '16

What the mines purchase from manufacturers. Am Ind 17:43 S '16

See also Detonators; Electricity in mining; Mine cars; Mine doors; Mine haulage; Mine hoisting; Mining machinery

Mine explosions

Ignition of explosive gas mixtures by electric sparks; with discussion. J. D. Morgan. diags Inst E E J 54:196-208 Ja 15 '16; Abstract. Elec W 67:274-5 Ja 29 '16; Abstract. Sci Am S 81:227 Ap 8 '16

Limits of inflammability of mixtures of methane and air. G. A. Burrell and G. G. Oberfell. diags U S Bur Mines Tech Pa 119:1-27 '15

See also Coal mines and mining—Accidents and explosions; Mine accidents; Mine air; Mine fires; Mine gases

Mine fans. *See* Mine ventilation**Mine firebosses**

Efficient fireboss. Coal Age 9:768, 854-5, 893-5, 939-40, 979, 1026, 1065-6, 1101-2; 10:42-3, 84, 195-6, 241, 280, 316-18 Ap 29, My 13-Jl 8, 29-49 '16

Mine fires

Coal-mine fires. R. V. Norris. il diags plan Coal Age 10:666-71 O 21 '16

Explosibility of gases from mine fires. G. A. Burrell and G. G. Oberfell. plan U S Bur Mines Tech Pa 134:1-31 '15

Fighting an anthracite mine fire. W. B. Richards. il diags Coal Age 9:1013-17 Je 10 '16

Mine-fire methods employed by the United Verde copper co. R. E. Tally. diag plans Am Inst Min E Bul 117:1545-53 S '16; Discussion. 120:2173-80 D '16

Quenching a fire in a Kansas mine with chemicals. J. Pellegrino. il Coal Age 10:303-4 Ag 19 '16

Sealing off a mine fire. J. Meakin. Coal Age 9:644 Ap 8 '16

Sealing off mine fires. J. Cain. diags Coal Age 8:1048-50 D 25 '15

Walling in mine fires. Coal Age 9:748 Ap 29 '16

See also Firedamp; Mine accidents; Mine explosions; Safety lamps

Mine foremen

Certification of mine foremen. Coal Age 10: 276-7, 360-1, 397, 513-14, 554-5, 687-8, 730, 774-5, 817-18, 853, 898 Ag 12, 26-S 2, 23-30, O 21-N 25 '16

Efficient mine foremen. Coal Age 8:770-1, 898, 984-5, 1073-4; 9:24, 91-3, 134, 177, 217, 264-5, 301-3, 338-9, 385, 469-70, 509-10, 547-8, 723 N 6, 27, D 11, 25 '15, Ja 1-F 26, Mr 11-25, Ap 22 '16

Inefficiency of mine foremen. Coal Age 9:857, 979-81 My 13, Je 3 '16

Metal miners' examination. Eng & Min J 101: 13-14 Ja 1 '16

Mine foremen's examination. Utah, November, 1915. il Coal Age 9:430, 472 Mr 4-11 '16

Rate and inspection books for mine foremen. H. D. Easton. Coal Age 10:837-8 N 18 '16

Textbooks in examination. Coal Age 10:896-7 N 25 '16

West Virginia examination for mine foremen, Oct. 26-28. Coal Age 8:817 N 13 '15

See also Mine management

Mine gases

Barograph to replace the barometer in coal mining. Coal Age 9:136 Ja 15 '16

Behavior of gas on steep pitches. E. C. Curtis. Coal Age 10:472-3 S 16 '16

Black damp in mines. G. A. Burrell, I. W. Robertson and G. G. Oberfell. U S Bur Mines Bul 105:1-88 '16

Chemistry in coal mining. A. G. Blakeley. Coal Age 10:299-300 Ag 19 '16

Composition of the rock gas of the Cripple Creek mining district, Colorado. G. A. Burrell and A. W. Gauger. Am Inst Min E Bul 113:843-63 My '16; Discussion. 120:2211-13 D '16

Detecting gas by smell. Coal Age 9:938-9, 981-2, 1063, 1104; 10:41-2, 83-4, 160, 197, 240, 279-80, 652, 855-6 My 27-Je 3, 17-24, Jl 1-8, 22-Ag 12, O 14, N 18 '16

Effect of fall of barometer on emission of gas. Coal Age 9:550, 684-5, 767, 1023-4; 10:40 Mr 25, Ap 15, 29, Je 10, Jl 1 '16

Effects of atmospheres deficient in oxygen on small animals and on men. G. A. Burrell and G. G. Oberfell. U S Bur Mines Tech Pa 122:1-10 '15; Same cond. Am Gas Light J 104:sup18 Je 12 '16

Explosibility of gases from mine fires. G. A. Burrell and G. G. Oberfell. U S Bur Mines Tech Pa 134:1-31 '15

Explosive limits of gas. Coal Age 10:476 S 16 '16

Mine gases known as damps. Coal Age 8:857 N 20 '15

Removing gas in rise headings. diag Coal Age 10:281 Ag 12 '16

Safety in removing gas. Coal Age 10:278-9, 473 Ag 12, S 16 '16

Uncommon gas mixture. diag Coal Age 10:516 S 23 '16

See also Carbon monoxide; Firedamp; Mine air; Mine explosions; Mine ventilation; Safety lamps

Mine haulage

Automatic car return. diag Eng & Min J 101: 1112-13 Je 24 '16

Combination gathering motor. F. J. Foley. il diag Coal Age 8:928-9 D 4 '15

Compressed air or electricity in mine-stope haulages. A. E. Middleton. Eng & Min J 101:221-2 Ja 29 '16

Economics of haulage. diag Coal Age 9:212-13 Ja 29 '16

Electric mine haulage. C. M. Means. Coal Age 10:624-6 O 14 '16

Electricity in coal mine haulage. W. P. Little. il Gen Elec R 19:693-702, 776-84 Ag-S '16

Engine-plane haulage. Coal Age 8:816 N 13 '15

Gasoline motors in mines. Coal Age 10:551-3, 688, 726, 895 S 30, O 21-28, N 25 '16

Gathering-motor haulage. Coal Age 10:227-8, 361, 515, 553-4, 648-9, 772, 857 Ag 5, 26, S 23-30, O 14, N 4, 18 '16

Handling cars on pitches. Coal Age 8:941, 982; 9:93 D 4-11 '15, Ja 8 '16

Haulage economies. il Coal Age 10:34-5 Jl 1 '16

How to make a McGinty block. diag Eng & Min J 101:14 Ja 1 '16

Jigback used in constructing an incline. F. W. Foote. diag Eng & Min J 101:221 Ja 29 '16

Method of removing broken ore from flat stopes. M. Weimbren. diag Eng & Min J 101: 395 F 26 '16

Mine haulage; correspondence. Coal Age 10: 277, 314, 474, 771-2 Ag 12-19, S 16, N 4 '16

Motor haulage and side tracks. O. Bullock. diag Coal Age 9:23-4 Ja 1 '16

Slope haulage in Alabama. E. B. Wilson. il Coal Age 10:220-1 Ag 5 '16

Trouble saver on rope haulage. diags Coal Age 10:788-9 N 11 '16; Same. Eng & Min J 102:942 N 25 '16

See also Locomotives, Mine; Mine cars; Mine hoisting; Mine tipples; Mine tracks

Cost

Comparative costs of mine haulage by horses and compressed air. Eng & Contr 46:433-4 N 15 '16

Continuous face haulage. J. F. K. Brown. diags Coal Age 8:1063-4 D 25 '15

Mine hoisting

Air-balanced hoisting engine. il plan Power 44:640-1 N 7 '16

Automatic operation of mine hoists as exemplified by the new electric hoists for the Inspiration consolidated copper co. H. K. Burch and M. A. Whiting. il Am Inst Min E Bul 111:583-96 Mr '16; Same. Gen Elec R 19:763-70 S '16

Mine hoisting—Continued

- Automatic skip handles hot ore. H. V. Schiefer. *il* diags Eng N 76:590-2 S 28 '16
- Concrete idler stands. H. H. Hunner. *il* Eng & Min J 102:179 J1 22 '16; Same. Coal Age 10:187 J1 29 '16
- Conveyor as a shaft hoist. diags Coal Age 8: 1059-60 D 25 '15
- Crown mines hoist installation. F. L. Stone. *il* map Gen Elec R 19:556-60 Je '16
- Device for indicating slack rope. D. E. Charlton. diags Eng & Min J 101:12 Ja 1 '16
- Double-end skip dump. diags Eng & Min J 102: 506 S 16 '16
- Equalizing a double hoist. Coal Age 9:983 Je 3 '16
- Handling double-deck cages. Coal Age 10:314-15, 359 Ag 19-26 '16
- Hoisting ropes. U S Bur Mines Bul 75:110-25 '15; Excerpts. Eng & Min J 100:926-7, 966 D 4-11 '15
- Large electric hoist. W. Sykes. *il* diags Am Inst E E Pro 34:1819-27 Ag '15; Discussion. 35:414-19 Mr '16
- Large electric hoist at Middle Fork mining co., Benton, Ill. *il* Coal Age 9:289 F 12 '16
- Lateral, or side, friction of hoisting ropes. H. W. G. Holbaum. Coal Age 8:1010 D 18 '15
- Mine-hoist calculations. F. L. Stone. *il* Coal Age 8:916-20; 9:923-6 D 4 '15, My 27 '16
- Mining and milling practice at Santa Gertrudis. H. Rose. diags Am Inst Min E Bul 116:1303-7 Ag '16; Same. Eng & Min J 102: 373-4 Ag 26 '16
- New electric hoist of the North Butte mining co. F. Moeller. *il* diags Am Inst Min E Bul 110:343-54 F '16; Abstract. Iron Age 97:840 Ap 6 '16; Discussion. Am Inst Min E Bul 113:907-9 My '16
- New man hoist at Inspiration consolidated copper co. *il* Eng & Min J 101:476-7 Mr 11 '16
- Nordberg-G. E. hoist for Elm Orlu mining co., Butte, Mont. Eng & Min J 101:256-7 F 5 '16
- Removing a large master gear. H. J. Nelms. Coal Age 10:59 J1 8 '16
- Requirements and signals in hoisting practice. Coal Age 10:85 J1 8 '16
- Runaway tubs or hutches. diags Eng & Min J 100:1049 D 25 '15
- Steam engine's extravagance. C. W. Crawford. Coal Age 10:351-2 Ag 26 '16
- Successful hoist installation. *il* Coal Age 9: 573-4 Ap 1 '16
- Transfer truck and chairs. R. F. Smith. diags Eng & Min J 101:1074 Je 17 '16; Same. Coal Age 10:268 Ag 12 '16
- Webb hoist recorder. *il* Coal Age 10:145 J1 22 '16
- Wire rope and the coal mine. J. Steelman. *il* diags Coal Age 9:1082-7 Je 24 '16
- See also* Electric shovels; Hoisting machinery; Mine cars; Mine haulage; Wire rope
- Safety devices and measures**
- Device for chairing cages. *il* Eng & Min J 101: K18 My 6 '16
- Folding safety gate for cages. diags Eng & Min J 101:1111-12 Je 24 '16; Same. Coal Age 10:109 J1 15 '16
- Safety cage gates. R. F. Smith. diags Eng & Min J 102:95 J1 8 '16
- Safety device for cages. A. S. Livingston. *il* Eng & Min J 102:864 N 11 '16
- Safety for hoist engineers. H. E. Scott. Eng & Min J 102:745 O 21 '16
- Safety for hoist engineers. W. V. DeCamp. Eng & Min J 102:870 N 11 '16
- Safety in hoisting in shafts and slopes. O. P. Hood. Eng & Min J 102:836-7 N 4 '16
- Mine inspection**
- Duties of a coal mine inspector. P. A. Grady. *il* Coal Age 9:1048-9 Je 17 '16
- Mine inspectors**
- State geological and mining officials. Eng & Min J 101:104 Ja 8 '16
- Successful mine inspector. W. Rutledge. Coal Age 9:670-1 Ap 15 '16
- Mine inspectors' institute of the United States of America**
- 9th annual meeting, Joplin, Mo., June 13-15. Coal Age 10:64-5 J1 8 '16

President's address delivered at the eighth annual meeting, St. Louis, Mo., June 8-11. Coal Age 8:797-8 N 13 '15

Mine insurance. *See* Insurance, Mine

Mine labor. *See* Coal miners; Miners

Mine lamps. *See* Safety lamps

Mine lighting

Coal mine illumination and its relation to accident prevention and miners' nystagmus; with discussion. R. E. Simpson. *Illum Eng Soc* 11:137-51 no 2 '16

Illumination of mines. R. P. Burrows. *il* plan Am Inst Min E Bul 107:2237-45 N '15; Discussion. 113:968-78 My '16

Mine locomotives. *See* Locomotives, Mine

Mine management

Arbitrary ruling. Coal Age 10:239-40 Ag 5 '16

Competent mine management and contracts. J. E. Ambrose. Coal Age 10:294-5 Ag 19 '16

Disseminating education on safety. J. F. K. Brown. Coal Age 10:388-9 S 2 '16

Efficiency vs. financial success. Coal Age 9: 1103-4 Je 24 '16

Efficiency vs. making money. F. J. Immler. Coal Age 9:366-7 F 26 '16

Human differential in mining operations. Coal Age 10:528 S 30 '16

Labor problems at coal mines. J. W. Bischoff. Coal Age 8:1058-9 D 25 '15

Merit vs. favoritism in gaining promotion in mining. Coal Age 9:954-5; 10:157-8, 397-8 Je 3, J1 22, S 2 '16

Mine discipline imperative. Coal Age 9:178-80 Ja 22 '16

Mine warehouse system. E. I. Roberts. plan Coal Age 9:115-17, 154-6 Ja 15-22 '16

Success in mine management. Coal Age 9:605-7, 938 Ap 1, My 27 '16

Waste of material in mines. Coal Age 9:265, 724-5, 896; 10:81-2, 277-8, 473-4, 651-2, 854-5 F 5, Ap 22, My 20, J1 8, Ag 12, S 16, O 14, N 18 '16

See also Coal mines and mining—Management; Mine equipment; Mine foremen

Mine maps

Care of mine maps. G. L. Yaste. Coal Age 10: 223 Ag 5 '16

Making a mine map. G. M. Brown. Coal Age 9:700-1 Ap 22 '16

Mine maps vs. mine sketches. H. L. Fickett. Coal Age 8:740-1 N 6 '15

Protect mine maps and plans. R. J. Foster. Coal Age 10:376 S 2 '16

See also Mine surveying

Mine power. *See* Mining engineering—Power

Mine pumping

Calamity trail—mine pumps. C. W. Crawford. Coal Age 10:266-7 Ag 12 '16

Centrifugal pump for variable delivery. A. N. Cole. Coal Age 9:876 My 20 '16; Same. Eng & Min J 101:983 Je 3 '16

Cost of installing four large electric mine pumps. Coal Age 10:111 J1 15 '16; Same cond. Elec R & W Elec'n 69:237 Ag 5 '16; Excerpts. Power 44:165 Ag 1 '16

Float control for mine pump. D. E. Charlton. plan Eng & Min J 101:903 My 20 '16

Handling water in underground workings. H. S. Geisner. *il* Coal Age 10:378-81 S 2 '16

How two pumps effected cost and efficiency. J. J. O'Connell. *il* Coal Age 9:567-8 Ap 1 '16

Motor-driven pumping installations at Leonard mine, Butte, Mont. R. H. Richards. *il* plan Elec W 67:321-2 F 5 '16

Old Dominion pumping cost. Eng & Min J 101:902 My 20 '16

Pumping water through coal at the Storrs mine, Scranton, Penn. Coal Age 9:879 My 20 '16

Temporary mine pumping plant. *il* Eng & Min J 102:894 N 18 '16

Triple-plunger mine pump; efficiency and steam pressure. Coal Age 10:281 Ag 12 '16

Unwatering of the down town mining district of Leadville. W. H. Horton, jr. *il* diags Gen Elec R 19:96-106 F '16

Water problem at the Old Dominion mine. P. G. Beckett. diags maps Am Inst Min E Bul 112:679-710 Ap '16

- Mine railroads.** See **Mine tracks**; **Railroads**, Industrial
- Mine records.** See **Mine accounting**
- Mine reports**
 Camera in preliminary coal examinations. W. D. Sell. *Coal Age* 10:212-13 Ag 5 '16
 Conference on standardization of mining reports. J. T. Beard. *Coal Age* 9:457-8 Mr 11 '16
 Mine-accident statistics and prevention. Eng & Min J 101:467-8 Mr 11 '16
 Nature of private reports. A. H. Purdue. Eng & Min J 102:546 S 23 '16
- Mine rescue work**
 Accident near Coaldale, Penn. il *Coal Age* 8:880-1 N 27 '15
 Actual worth of oxygen breathing apparatus. T. Jeremiah. *Coal Age* 10:577-8 O 7 '16
 Bureau of mines improvements in breathing apparatus. il *diag Coal Age* 9:709-11 Ap 22 '16
 Disaster at Ravensdale, Wash. il *plan Coal Age* 9:459-62 Mr 11 '16
 Elementary first aid for the miner. W. A. Lynott and D. Harrington. il *U S Bur Mines Circ* 23:1-24 '16
 First-aid and mine safety. *Coal Age* 10:611-12, 650 O 7-14 '16
 First-aid car equipment. *Coal Age* 8:811 N 13 '15
 First aid in gas poisoning. I. G. Irvine. *Gas Age* 38:457 N 1 '16
 First-aid meet in Oklahoma. R. M. Johns. il *Coal Age* 9:1060-1 Je 17 '16
 First-aid training vs. contest. *Coal Age* 10:610-11 O 7 '16
 How first-aid contests may be made more useful. *Coal Age* 10:312-13 Ag 19 '16
 Indiana state first-aid meet. Bicknell, Oct. 30. il *Coal Age* 8:892-4 N 27 '15
 Indiana state first-aid meet; rules. il *Coal Age* 8:939 D 4 '15
 Lehigh Valley coal co.'s mine rescue department. C. M. Young. il *Coal Age* 9:299-300 F 12 '16
 Not an improvised stretcher. il *Coal Age* 10:893 N 25 '16
 Organization in rescue work. W. H. Moore. *Coal Age* 10:440 S 9 '16
 Oxygen mine-rescue apparatus. E. Steidle. Eng & Min J 102:797-9 O 23 '16
 Progress of first-aid work in British Columbia. Eng & Min J 102:815-16 N 4 '16
 Rescue and recovery operations in mines after fires and explosions. J. W. Paul and H. M. Wolfen. *U S Bur Mines* 109p '16
 Treatment in gas poisoning. L. G. Irvine. *Coal Age* 9:935 My 27 '16; Same. Eng & Min J 101:901-2 My 20 '16
 Underground mine rescue car. G. Libiez. il *diags Coal Age* 10:645-6 O 14 '16; Same. Eng & Min J 102:788-9 O 28 '16
 Union Pacific's mine-rescue and instruction car. T. Gibson. il *Coal Age* 9:852-3 My 13 '16
 Why mine-rescue cars ceased to tour Illinois. T. H. Devlin. *Coal Age* 9:218-19 Ja 29 '16
 Wyoming first-aid meet. T. Gibson. il *Coal Age* 8:850-1 N 20 '15
 See also **Mine accidents**; **Mining engineering**—**Safety measures**; **Respiratory apparatus**
- Mine roofs**
 Preventing roof slacking. il *Coal Age* 10:702-3 O 28 '16
 Stresses in the mine roof. R. D. Hall. *diags Am. Inst. Min. E. Bul* 105:2013-21 S '15; Discussion. 113:978-82 My '16
- Mine safety.** See **Mine hoisting**—**Safety devices and measures**; **Mining engineering**—**Safety measures**
- Mine sampling.** See **Ore sampling**
- Mine sanitation**
 History of the miners' phthisis problem on the Rand. Eng & Min J 101:936-7 My 27 '16
- Mine shafts**
 Concrete shaft lining; development of form handling and concrete placing methods. *diags Eng & Contr* 45:144-50 F 9 '16
 Concreting the Barron shaft in Pachuca, Mexico. J. E. Smith. *diags Eng & Min J* 101:676-9 Ap 15 '16
- Depths of Butte shafts; tabulation. Eng & Min J 101:141 Ja 15 '16
 Driving a 1,200-ft. raise. S. F. Eaton. *diag Eng & Min J* 102:461-4 S 9 '16
 Lining the shafts of mines—a downward system. M. Gilliaux. *Concrete* 8:139 Mr '16
 Method of recovering a caved in shaft in South Africa. P. Cazalet and W. W. Lawrie. *diags Eng & Contr* 44:450-1 D 8 '15
 New record in mine-shaft work. *Eng Rec* 74:613 N 18 '16
 Opening shaft mines. M. L. Hyde. *diags Coal Age* 9:910-13 My 27 '16
 Procedures that reduced costs in sinking four inclined mine shafts in Ontario, Canada. A. E. Hull. *diags Eng & Contr* 46:261-4 S 20 '16
 Semiautomatic safety gate for mine shafts. J. C. Bennett. *diags Eng & Min J* 101:393-4 F 26 '16
 See also **Mine hoisting**; **Mine timbering**; **Shaft sinking**
- Mine shops**
 Drill- and tool-sharpening shop at the Copper Queen mine. il *diags Eng & Min J* 101:1099-1104 Je 24 '16
- Mine signals**
 Bell and buzzer signal system. A. E. Hall and G. McFeely. *diag Eng & Min J* 102:746-7 O 21 '16
 Hoisting-engine signals. W. H. Davis. il *Coal Age* 10:336 Ag 26 '16
 Original and effective mine signal system. *Coal Age* 10:576 O 7 '16; Same. *Elec. R. & W. Elec'n* 69:739 O 21 '16
- Mine stables**
 Underground mine stables. G. E. Greer. *diags Coal Age* 9:998-9 Je 10 '16
- Mine stoppings**
 Mine-ventilation stoppings, with especial reference to coal mines in Illinois. R. Y. Williams. il *diags U S Bur Mines Bul* 99:1-25 '15
- Mine subsidences**
 British subsidences. il *Coal Age* 10:642-4 O 14 '16
 More mine cave-ins threaten part of Scranton. il *Eng. N* 76:280-2 Ag 10 '16
- Mine supplies.** See **Mine equipment**
- Mine surveying**
 Adaptation of modern traverse tables to mine surveys. L. D. Tracy. *Coal Age* 9:528-30 Mr 25 '16
 Bullseye plumb-bob reflector. H. A. Schmieding. il *Coal Age* 10:370 N 25 '16
 Convenient table for the mine transitman. *Coal Age* 9:797 My 6 '16
 Dip and strike calculations. T. Simons. *diag Eng & Min J* 102:270 Ag 5 '16; Correction. 102:338 Ag 19 '16
 Dip and strike calculations from drill-hole data. G. E. Burton. *diags Eng & Min J* 102:136-7 Jl 15 '16
 Handy light for mine surveying. A. E. Hall. *diag Eng & Min J* 102:465 S 9 '16
 New bob-line reflector. C. S. Schwartz. *diag Coal Age* 10:416 S 9 '16; Same. Eng & Min J 102:505 S 16 '16
 Peculiar magnetic phenomenon. H. D. Palister. *diag Eng & Min J* 101:444 Mr 4 '16
 Practical notes on mine surveying. A. A. Jones. Eng & Min J 102:717 O 14 '16
 Practical notes on mine surveying. W. F. Boericke. *map Eng & Min J* 102:333-5 Ag 19 '16
 Set-over tables for the mine transitman. F. C. Sanner. *Coal Age* 10:335 Ag 26 '16
 Simple reflector for use in underground surveys. *diag Coal Age* 10:257 Ag 12 '16
 Stope surveying at Mount Lyell. G. F. Jakins and L. J. Coulter. *diags plans Eng & Min J* 102:129-33 Jl 15 '16
- Mine taxation**
 Abstracts of current decisions on mines and mining. May to September, 1915. J. W. Thompson. *U S Bur Mines Bul* 113:105-15 '16
 Mexican mining taxes. Eng & Min J 100:1037-8 D 25 '15
 Pennsylvania state tax upon anthracite invalid. *Coal Age* 8:802-3 N 13 '15
 Uniform mine taxation. Eng & Min J 102:433-4 S 2 '16

Mine taxation--Continued

Unreasonable increases in the anthracite taxes.
Coal Age 8:833 N 20 '15

See also Mine valuation

Mine telephones

Mine telephone equipment. W. C. Freeman.
plans Coal Age 8:1007-9 D 18 '15

Mine ties

Maryland metal cross-tie. diags Coal Age 9:
1088 Je 24 '16
Steel mine-track ties. diag Coal Age 10:556,
684 S 30, O 21 '15

Mine timbering

Calculation of mine gangway timbers. A. G.
Morlock. Coal Age 8:837-8 N 20 '15
German post-pulling device. il Coal Age 8:838-9
N 20 '15

Keyboard method of shaft timbering. A. A.
Richie. plan Eng & Min J 101:438 Mr 4 '16

Methods of mining in the anthracite field.
H. M. Crankshaw. il diags Coal Age 10:570-5
O 7 '16

Modern methods of mining and ventilating
thick pitching beds; use of steel timber.
H. M. Crankshaw. il Am Inst Min E Bul
115:1167-9 Jl '16

Proportioning of mine timber. Coal Age 10:
116 Jl 15 '16

Shaft-timbering examples. A. E. Hall. diags
plan Eng & Min J 102:588-90 S 30 '16

Steel mine timbering. S: Fray, jr. il Coal Age
8:757 N 6 '15

Steel mine timbering costs. R. B. Woodworth.
il Coal Age 8:835-6 N 20 '15

Stopping in the Calumet and Arizona mines.
Bisbee, Ariz. P. D. Wilson. diags Am Inst
Min E Bul 115:1099-1117 Jl '16

Using angles and channels in shaft timbering.
T. D. Thomas. diag Coal Age 9:114 Ja 15 '16

See also Headframes; Mine shafts

Mine tipples

Concrete tippie in Ohio. W: G. Burroughs. il
diag Coal Age 10:872-3 N 25 '16

Design for shaker screens. C. C. Wright. il
diags plan Coal Age 9:284-8 F 12 '16

Design of bituminous mining plants. W: A.
Weldin. il diags Eng Soc W Pa 31:644-53 N
'15

Dry preparation of bituminous coal at Illinois
mines. E. A. Holbrook. il diags plan Ill U
Eng Exp Sta Bul 88:32-44 '16

Modern coal tipples. H: J. Edsall. il plan Coal
Age 10:4-7, 60-3 Jl 1-8 '16

New type of river tippie, by the Winifrede coal
co. il Coal Age 9:120 Ja 15 '16

Record replacement. R. G. Miller. il diags
plan Coal Age 9:662-4 Ap 15 '16

Simplicity in tippie design. R. G. Miller. plans
Coal Age 9:196-8 Ja 29 '16

Structural features of a coal-screening plant.
Coal Age 9:539-40 Mr 25 '16

Successful reduction in coal breakage at tip-
ples. M. Raymond. il Coal Age 9:575-7 Ap 1
'16

Tierney tippie at Stone, Ky. H. Reisser. il
Coal Age 9:837-8 My 13 '16

Tippie at Gloucester, Ohio. M. Raymond. il
diags Coal Age 10:30-1 Jl 1 '16

Mine tracks

Automatic car rerail. R. W. Mayer. Coal Age
9:700 Ap 22 '16

Car off the track. Coal Age 9:701 Ap 22 '16

Convenient tippie-track layout. G: S. Brackett.
plan Coal Age 9:111 Ja 15 '16

Elevation of outer rail of curve in track.
diags Coal Age 10:44 Jl 1 '16

Frogless switch. L. Smith. diags Coal Age
10:831 N 18 '16

Gage and level boards for track laying. diag
Coal Age 10:213 Ag 5 '16; Same. Eng & Min
J 102:302-3 Ag 12 '16

Handling high coal outputs. H. Reisser. plan
Coal Age 9:486-7 Mr 18 '16

Mine switches and rail frogs. diag Coal Age
10:653 O 14 '16

Mine-track switch. A. C. Daman. diag Eng &
Min J 102:903 N 18 '16

Relation of wheelbase to radius of curve.
diag Coal Age 9:1105 Je 24 '16; Same. Eng &
Min J 102:137-8 Jl 15 '16

Semiautomatic switch. il Coal Age 9:408 Mr 4
'16

Standard sub turns. E. W. R. Butcher. diags
Eng & Min J 101:1029 Je 10 '16

Straightening mine rails. C. C. Semple. diag
Eng & Min J 101:437 Mr 4 '16

Track layout at mine tipples. E. A. Holbrook.
plan Coal Age 10:180-2 Jl 29 '16

Turnouts for narrow-gage industrial railway
track. R. D. Brown. diags Eng N 75:231-2 F
3 '16; Same. Coal Age 9:626-7 Ap 18 '16;

Same. Eng & Min J 101:816-17 My 6 '16

Underground mine roads. J. McCrystle. diags
Coal Age 9:959-64, 1000-3 Je 3-10 '16

Weight-operated switch. diags Coal Age 8:
1050 D 25 '15

See also Mine ties

Mine transportation. See Mine haulage; Mine
hoisting; Mine tracks

Mine tunnels. See Tunnels and tunneling

Mine valuation

Metallurgical calculations as affecting mine
valuation. B. Magnus. Eng & Min J 102:669-
70 O 7 '16

Valuation of anthracite mines. R. V. Norris.
Sch Mines Q 36:313-25 Jl '15

What is the true value of a complex ore? A. M.
Plumb. Met & Chem Eng 14:8, 10 Ja 1 '16

See also Ore valuation

Mine ventilation

Air movement in mine ventilation. diags plan
Metal Work 36:337-8 S 15 '16

Effect of barometric pressure to derange or
stop ventilation. F. C. Cornet. Coal Age 9:
159-60 Ja 22 '16

Fan ventilation. R. McCune. Coal Age 9:510
Mr 18 '16

Fan ventilation at shaft mine. Coal Age 10:
731 O 28 '16

Friction of air in mines. Coal Age 9:727 Ap 22
'16

Important features in mine-ventilating fans.
H. H. Valiquet. Coal Age 9:123-4 Ja 15 '16

Locating a booster fan. Coal Age 9:550, 646,
685-6, 725-6, 856-7, 982; 10:43, 315-16 Mr 25,
Ap 8-22, My 13, Je 3, Jl 1, Ag 19 '16

Mine-fire methods employed by the United
Verde copper co. R. E. Tally. plan Am Inst
Min E Bul 117:1551-3 S '16

Mine-ventilation stoppings, with especial re-
ference to coal mines in Illinois. R. Y. Wil-
liams. il U S Bur Mines Bul 99:1-25 '15; Con-
clusions. Coal Age 9:376 F 26 '16

Mining methods employed in the anthracite
field. H. M. Crankshaw. diags Coal Age 10:
454-5 S 16 '16

Modern methods of mining and ventilating
thick pitching beds. H. M. Crankshaw. il
diags Am Inst Min E Bul 115:1159-69 Jl '16

Power to operate fan. Coal Age 9:181 Ja 22 '16

Supplying fresh air through canvas tubes to
underground workers. il Sci Am 114:661 Je
24 '16

Use of twin mine fans. diag Coal Age 10:243
Ag 5 '16

Value of the experimental fan in the mining
laboratory; abstract. D: E. Thomas. Am
Soc M E J 38:420 My '16

Ventilating a long drift. J. E. Hayden. Eng &
Min J 101:222-3 Ja 29 '16

Ventilation at Wallaroo mines. diag Eng &
Min J 102:260 Ag 5 '16

Ventilation problem. Coal Age 10:362 Ag 26
'16

Ventilation without crosscuts. W. J. Mont-
gomery. diags Coal Age 9:583-4 Ap 1 '16

Water-gage readings in fan ventilation. Coal
Age 10:853, 900 N 18-25 '16

See also Firedamp; Mine air; Mine gases

Mine water

Chemistry in coal mining; with table showing
analyses of several mine waters. A. G.
Blakeley. Coal Age 10:297-8 Ag 19 '16

Chemistry of mine water. C. M. Young. il
Coal Age 10:704-7 O 28 '16

Neutralizing and softening mine drainage
water. J. R. Campbell. il Coal Age 8:874-7
N 27 '15

See also Mine dams; Mine drainage; Mine
pumping

Mineral industries

British mineral statistics. Engineer 122:28-9
Jl 14 '16

Mineral industries—Continued

Mineral export tax in Peru. Eng & Min J 100:1018 D 18 '15

Preparedness for peace in the mineral industries; what is being done to eliminate waste. S. B. Stone. *il Sci Am* 114:350-1+ Ap 1 '16

United States smelting, refining and mining co. report for 1915. Eng & Min J 101:1063-4 Je 17 '16

See also Iron industry and trade; Metal trade; Metallurgy; Mines and mineral resources; Mining industry and finance; Petroleum industry; Steel industry and trade

Mineral lands

Abstracts of current decisions on mines and mining, May to September, 1915. J. W. Thompson. *U S Bur Mines Bul* 113:1-122 '16

Abstracts of current decisions on mines and mining, reported from October to December, 1915. J. W. Thompson. *U S Bur Mines Bul* 113:1-13, 56-62 '16

Antecedent mineral discovery requirement. E. D. Gardner. *Am Inst Min E Bul* 117:1693-1707 S '16; Discussion. 120:2200-3 D '16

Bench claims in the Yukon. J. A. MacDonald. *diags Eng & Min J* 101:722-3 Ap 22 '16

Elm Orlu-Butte & Superior apex decision. *il Eng & Min J* 101:274-5 F 5 '16

Remedies for incongruities of Yukon placer regulations. J. A. Macdonald. *diags Eng & Min J* 101:806-7 My 6 '16

See also Mines and mineral resources; Oil lands; Ore deposits

Mineral oils. *See* Oils and fats; Petroleum

Mineral resources. *See* Mines and mineral resources

Mineralogy

Chemistry of minerals. J. E. Pogue. Eng & Min J 102:255-9 Ag 5 '16

Chloritic material in the ores of southeastern Missouri. C. S. Ross. *Econ Geol* 11:289-90 Ap '16

Genesis of asbestos and asbestiform minerals. S. Taber. *diags Am Inst Min E Bul* 119:1973-98 N '16

Origin and occurrence of certain crystallographic intergrowths. J. Segall. *pls Econ Geol* 10:462-70 Jl '15; Discussion. 11:179-85, 397-403 Mr, Je '16

Sericite a low temperature hydrothermal mineral. A. F. Rogers. 7 *pls Econ Geol* 11:118-50 Mr '16

See also Assaying; Crystallography; Earths, Rare; Geology; Metals; Mines and mineral resources; Rocks; also names of minerals, e.g., Coal, Feldspar, Petroleum

Minerals. *See* Mineralogy

Minerals separation, ltd.

10th annual meeting, London, Dec. 29, 1915. Eng & Min J 101:641-2 Ap 8 '16

Miners

Are there too many miners? *Coal Age* 10:767-8 N 4 '16

Arizona wage scales. Eng & Min J 101:24 Ja 1 '16

Clifton-Morenci strike. Eng & Min J 101:194 Ja 22 '16

Douglas Island, Alaska, wage rates. Eng & Min J 101:1115 Je 24 '16

Has unionization made miners more efficient? Eng & Min J 102:917-18 N 18 '16

How to hold miners. F. de F. Browning. *Coal Age* 9:408 Mr 4 '16

Labor conditions in Ontario. Eng & Min J 101:528 Mr 18 '16

Men employed in Anaconda mines at Butte; tabulation. Eng & Min J 101:141 Ja 15 '16

Mine workers' welfare in 1915. *Coal Age* 9:173-5 Ja 22 '16

Store checks vs. thrift. *Coal Age* 8:812-13, 852-4, 895-7, 943-4, 1027-9; 9:135 N 13-D 4, 18 '15, Ja 15 '16

Thrift among miners. *Coal Age* 9:426-7, 467, 608, 686, 10:80-1 Mr 4-11, Ap 1, 15, Jl 8 '16

See also Coal miners; Mine accidents; Mine firebosses; Mine foremen; Mine rescue work; Mining camps; Mining towns

Diseases and hygiene

Bureau of mines' studies of occupational diseases. W. A. Lynott. *J Ind & Eng Chem* 8:1062-4 N '16

Dust allaying in Rand mines. A. C. Key. *il Eng & Min J* 101:1065-7 Je 17 '16

History of the miners' phthisis problem on the Rand. Eng & Min J 101:936-7 My 27 '16

How a miner can avoid some dangerous diseases. A. J. Lanza and J. H. White. *il U S Bur Mines Circ* 20:1-25 '16

Miners' bronchitis in England. *Coal Age* 10:834 N 18 '16

Miners' phthisis prevention. A. C. Key. Eng & Min J 102:898-900 N 18 '16

Tuberculosis in coal mines. *Coal Age* 10:893-4 N 25 '16

See also Miners' nystagmus

Miners' and mechanics' institutes

Work accomplished. R. Y. Williams. *Coal Age* 8:883-4 N 27 '15

Miners' houses

Economics of housing. F. W. Fredericks. Eng & Min J 102:516 S 16 '16

Ready-made miners' houses in West Virginia. *il Coal Age* 9:332 F 19 '16

Miners' lamps. *See* Safety lamps

Miners' nystagmus

Cause of miner's nystagmus. J. Ashworth. *Coal Age* 10:553 S 30 '16

Miners' nystagmus. F. L. Hoffman. *bibliog U S Bur Mines Bul* 93:1-60 '16

Mines, Bureau of. *See* United States—Mines, Bureau of

Mines, Military

Trenching and mining operations; important underground maneuvers in the war. *il Sci Am* S 81:52 Ja 22 '16

Mines, Submarine

Detonation of submarine mines by electricity. *diags Sci Am* S 81:253 Ap 15 '16

Marine mines; their purpose; how they are planted and how destroyed. *il diags Sci Am* S 80:388-9 D 18 '15

Mines and mineral resources

Data of the world's principal mines. S. F. Shaw. Eng & Min J 101:86-8 Ja 8 '16

Future of the world's metal supplies. D. M. Liddell. Eng M 50:759-65 F '16

See also Coal mines and mining; Copper mines and mining; Copper ores; Geology; Gold mines and mining; Hydraulic mining; Iron mines and mining; Lead mines and mining; Magnesite; Manganese; Meer-schaum; Mercury; Metals; Mine accidents; Mine fires; Mine management; Mine surveying; Mine ventilation; Mine water; Mineral lands; Miners; Mining engineering; Mining laws; Molybdenite; Monazite; Ore deposits; Ore sampling; Petroleum; Phosphates; Potash; Prospecting; Quarries and quarrying; Shaft sinking; Silver; Silver mines and mining; Sulphur; Tin mines and mining; Tungsten; Zinc mines and mining

Exhibitions

Copper mine in United States national museum. *Sci Am* 115:85 Jl 22 '16

Alaska

See also Coal mines and mining—Alaska; Copper mines and mining—Alaska; Gold mines and mining—Alaska

Arizona

Geology and ore deposits of Mohave county, Arizona. F. C. Schrader. *il maps Am Inst Min E Bul* 119:1935-67 N '16

Growth of the Globe district, Arizona. L. D. Ricketts. Eng & Min J 102:706-7 O 14 '16

Mineral deposits of Cerbat and Black mountains, Arizona. Eng & Min J 101:11 Ja 1 '16

Tom Reed-Gold Road mining district. J. D. Sperr. *il map Eng & Min J* 101:1-5 Ja 1 '16

See also Copper mines and mining—Arizona; Gold mines and mining—Arizona; Tungsten

Australasia

Mining in Australasia in 1915. W. P. Geary. Eng & Min J 101:126-8 Ja 8 '16

Australia

Mining in Australia. Eng & Min J 102:85-6 Jl 8 '16

See also Lead mines and mining—Australia

Mines and mineral resources—Continued**Bolivia**

- Amenities of Bolivian mining. M. R. Lamb. *il Eng & Min J* 102:81-4 *Jl* 8 '16
- Bolivian mining in 1915. P. F. Blik and M. G. F. Söhnlein. *map Eng & Min J* 101:173-5 *Ja* 22 '16
- Patino tin mines, Bolivia. B: L. Miller and J. T. Singewald, jr. *il Eng & Min J* 102:451-5 *S* 9 '16
- Silver-tin mining in Bolivia. J. T. Singewald, jr., and B: L. Miller. *il Eng & Min J* 102:533-5 *S* 23 '16

Brazil

- High grade manganese ores of Brazil. J. T. Singewald, jr., and B: Miller. *il map Iron Age* 97:417-20 *F* 17 '16
- Manganese ores of Russia, India, Brazil and Chile. E. C. Harder. *maps Am Inst Min E Bul* 113:785-92 *My* '16; Discussion. 120:2222-8 *D* '16
- Manganese ores of the Lafayette district, Minas Geraes, Brazil. J. T. Singewald, jr., and B: L. Miller. *il Am Inst Min E Bul* 118:1745-62 *O* '16
- Mining industry of Brazil. B: L. Miller and J. T. Singewald, jr. *il map Eng & Min J* 101:759-62 *Ap* 29 '16

British Columbia

- British Columbia mining, 1915. *Eng & Min J* 101:236, 268-70 *Ja* 29-*F* 5 '16
- Operations in the Slocan district. D. Lay. *il flow sheet Eng & Min J* 101:463-7 *Mr* 11 '16
- Solution of some hydraulic mining problems on Ruby Creek, British Columbia. C. F. Lee and T. M. Daulton. *il diags map Am Inst Min E Bul* 113:835-42 *My* '16
- See also* Coal mines and mining—British Columbia

British Guiana

- Mineral production of British Guiana. *Eng & Min J* 102:894 *N* 18 '16
- Mining in British Guiana. F. Fowler. *Eng & Min J* 101:725-6 *Ap* 22 '16

Bukowina

- Manganese ores of Bukowina. H. K. Scott. *map Iron Tr R* 59:738-41 *O* 12 '16; Same cond. *Engineer* 122:332-3 *O* 13 '16; Same cond. *Eng & Min J* 102:935-7 *N* 25 '16

Burma

- Burma corporation ltd. report. *Eng & Min J* 102:271 *Ag* 5 '16
- Burma increasing output of the Bawdwin mines. *Eng & Min J* 101:20-1 *Ja* 1 '16
- Geology of the Bawdwin mines. M. H. Love-man. *il maps Am Inst Min E Bul* 120:2119-43 *D* '16

California

- Mining progress in California. *Eng & Min J* 102:293-4 *Ag* 12 '16

Canada

- Canadian mineral resources. *Eng & Min J* 101:1108-9 *Je* 24 '16
- Mineral production of Canada. J: McLeish. *Eng & Min J* 101:483-4 *Mr* 11 '16
- Mineral production of Canada in 1915. *Engineer* 122:178 *Ag* 25 '16

Central America

- Central America in 1915. *Eng & Min J* 101:120-1 *Ja* 8 '16

Chile

- Exploitation of Chilean mines. B: L. Miller and J. T. Singewald. *il map Eng & Min J* 102:289-93 *Ag* 12 '16
- Manganese ores of Russia, India, Brazil and Chile. E. C. Harder. *maps Am Inst Min E Bul* 113:792-8 *My* '16; Discussion. 120:2222-8 *D* '16
- Mine of Chile exploration co., Chuquicamata. P. Yeatman. *il Eng & Min J* 101:307-14 *F* 12 '16
- See also* Copper mines and mining—Chile; Saltpeter, Chile

China

- Mining in China. F. Browne. *Eng & Min J* 102:336-7 *Ag* 19 '16
- See also* Iron mines and mining—China

Colorado

- Boulder county tungsten district. H. J. Wolf and P. P. Barbour. *flow sheet il Eng & Min J* 102:165-9 *Jl* 22 '16
- Mining in Colorado in 1915. G: E. Collins. *Eng & Min J* 101:180-1 *Ja* 22 '16
- Mining tungsten ores in Colorado. R. C. McKenna. *il Iron Tr R* 57:1280-2 *D* 30 '15
- See also* Gold mines and mining—Colorado

Cuba

- Cuba and Trinidad in 1915. *Eng & Min J* 101:55 *Ja* 8 '16
- Genesis and relations of the Daiquiri and Firmeza iron-ore deposits, Cuba. J. T. Singewald, jr., and B: L. Miller. *Am Inst Min E Bul* 111:671-8 *Mr* '16
- Geology of the iron-ore deposits of the Firmeza district, Oriente Province, Cuba. M. Roesler. *bibliog il map Am Inst Min E Bul* 118:1789-1839 *O* '16
- Iron deposits of Daiquiri, Cuba. W. Lindgren and C. P. Ross. *bibliog il Am Inst Min E Bul* 106:2171-90 *O* '15; Discussion. 113:886-93 *My* '16
- Mining in Oriente province, Cuba. J. T. Singewald, jr., and B: L. Miller. *il map Eng & Min J* 101:587-92 *Ap* 1 '16

Great Britain

- Demand for a British department of mines. *Eng & Min J* 102:S79-80 *N* 11 '16
- Proposed department of minerals and metals. *Engineer* 122:285 *S* 29 '16

Honduras

- Trip through Honduras. D. McBride. *map Eng & Min J* 102:853 *N* 11 '16

Idaho

- Mining in Idaho. R. N. Bell. *Eng & Min J* 101:177-9 *Ja* 22 '16

India

- Manganese ores of Russia, India, Brazil and Chile. E. C. Harder. *maps Am Inst Min E Bul* 113:770-85 *My* '16; Discussion. 120:2222-8 *D* '16
- Mineral production of India in 1914. *Eng & Min J* 101:137 *Ja* 15 '16

Indo-China

- See* Zinc mines and mining—Indo-China

Japan

- Japanese mines output in 1915. *Eng & Min J* 102:513 *S* 16 '16
- Japanese mining expansion. *Eng & Min J* 102:143-4 *Jl* 15 '16
- Mining in Japan in 1915. H. W. Paul. *Eng & Min J* 101:133-4 *Ja* 15 '16

Maryland

- Metallographic study of the copper ores of Maryland. R. M. Overbeck. *il Econ Geol* 11:151-78 *Mr* '16

Mexico

- Metallurgy of native-silver ores of southwestern Chihuahua. W. M. Brodie. *il Eng & Min J* 101:297-301 *F* 12 '16
- Mining in Mexico in 1915. *Eng & Min J* 101:116-18 *Ja* 8 '16

- See also* Petroleum—Mexico

Minnesota

- See* Iron mines and mining—Minnesota

Montana

- Copper and zinc production in Montana. B. B. Thayer. *Eng & Min J* 101:50-1 *Ja* 8 '16
- See also* Copper mines and mining—Montana

Nevada

- Yellow Pine district, Nev. L. A. Palmer. *il Eng & Min J* 102:123-5 *Jl* 15 '16

New Mexico

- See* Silver mines and mining—New Mexico

Mines and mineral resources—Continued

New South Wales

Flotation of silver-lead mineral at a New South Wales mine, H. H. Smith, il diag flow sheet Eng & Min J 100:953-7 D 11 '15
New South Wales mineral production in 1915. Eng & Min J 102:314 Ag 12 '16

New York (state)

Graphite industry in New York. R. W. Jones, il Eng & Min J 102:773-5 O 28 '16

See also Iron mines and mining—New York (state)

Norway

Norwegian copper and pyrites. Eng & Min J 102:862-3 N 11 '16
Sinking the Wallenberg shaft. L. D. Cooper, il Eng & Min J 102:811-14 N 4 '16

Ontario

Iron pyrites deposits in southeastern Ontario, Canada. P. E. Hopkins, map Am Inst Min E Bul 116:1361-9 Ag '16; Same cond. Eng & Min J 102:502-3 S 16 '16
Mineral production of Ontario. Eng & Min J 102:708 O 14 '16
Mining in Ontario in 1915. T. W. Gibson, Eng & Min J 101:121-2 Ja 8 '16
Ontario as a mining district. T. F. Sutherland, Eng & Min J 101:686-7 Ap 15 '16
Ontario mineral production. Eng & Min J 101:475 Mr 11 '16

Pennsylvania

See Coal mines and mining—Pennsylvania

Peru

Mineral production of Peru. Eng & Min J 102:708 O 14 '16
Mining industry of Peru. J. T. Singewald, jr., and B. L. Miller, il map Eng & Min J 101:845-50 My 13 '16
Morococha and Casapalca districts in Peru. J. T. Singewald, jr. and B. L. Miller, il maps Eng & Min J 102:889-93 N 18 '16
Prominent mines of Junin, Peru. J. E. Singewald and B. L. Miller, il Eng & Min J 102:583-7 S 30 '16

Rhodesia

Mining in Rhodesia. Eng & Min J 101:136-7 Ja 15 '16

Russia

Manganese ores of Russia, India, Brazil and Chile. E. C. Harder, maps Am Inst Min E Bul 113:765-70 My '16; Discussion. 120:2222-8 D '16
Mining in the Russian Empire, 1915. J. P. Hutchins, Eng & Min J 101:124-6 Ja 8 '16
Russian mining development during the war. Eng & Min J 102:893-4 N 18 '16

Serbia

Austrian mining in Serbia. Eng & Min J 102:814 N 4 '16

Siam

Tin production in Siam. Eng & Min J 102:582 S 30 '16

Siberia

Zinc and lead mining in Siberia. H. H. Knox, Eng & Min J 101:65 Ja 8 '16

South Africa

Mining situation in South Africa. Eng & Min J 102:595-6 S 30 '16
Transvaal mining in 1915. H. F. Marriott, Eng & Min J 101:122-4 Ja 8 '16
Will American capital be attracted to the far eastern Rand? A. C. Key, Eng & Min J 101:1124-6 Je 24 '16

South America

South America in 1915. Eng & Min J 101:118-20 Ja 8 '16

Sweden

Mineral output of Sweden. Eng & Min J 102:775 O 28 '16

Tennessee

Manganese in Tennessee, J. H. Watkins, il Eng & Min J 102:545-6 S 23 '16

United States

General review of mining in the United States in 1915. P. E. Barbour, Eng & Min J 101:105-16 Ja 8 '16
Ore production of United States. Eng & Min J 101:128 Ja 8 '16
See also Coal mines and mining—United States; Petroleum—United States; Phosphates; Potash

Utah

Lakeview mine, Utah. D. W. Jessup, il Eng & Min J 102:573-6 S 30 '16
Mining in Utah in 1915. E. R. Zalinski, Eng & Min J 101:138-40 Ja 15 '16
Potash in Salduro salt deposit. H. S. Gale, Eng & Min J 102:780-2 O 28 '16
Promontory district, Utah. Eng & Min J 102:476-7 S 9 '16
See also Copper mines and mining—Utah; Elaterite

Virginia

Lead-zinc mining in Virginia. F. B. Speed, jr. Eng & Min J 102:511-12 S 16 '16
Mining of manganese ore in Virginia, il Iron Age 97:776-7 Mr 30 '16
Southwest Virginia lead-zinc deposits. S. H. Ball and L. S. Thompson, il Eng & Min J 102:735-7 O 21 '16

Minimum wage

Committee of American manufacturers' association recommendations on minimum wage. Am Ind 16:29-30 Je '16

Mining accidents. See Mine accidents

Mining camps

Prohibition in a boom gold camp at Oatman, Arizona. F. H. Probert, Eng M 50:945 Mr '16

Mining claims. See Mineral lands

Mining companies

Abstracts of current decisions on mines and mining, May to September, 1915. J. W. Thompson, U S Bur Mines Bul 113:14-22 '16
See also Mining industry and finance; also names of companies, e.g. Calumet & Arizona mining company

Mining congress, American. See American mining congress

Mining costs

Block method of top slicing of the Miami copper co. E. G. Deane, Am Inst Min E Bul 117:1518 S '16
Brunswick Consolidated costs. Eng & Min J 101:1115 Je 24 '16
Cost and extraction in the selection of a mining method. C. E. Arnold, Am Inst Min E Bul 117:1519-22 S '16
Cost of electric power; St. Joseph lead co. Eng & Min J 102:8 J 1 '16
Cyaniding clayey ore at the Buckhorn gold mine. P. R. Cook, Am Inst Min E Bul 117:1560 S '16
Estimating construction costs. F. W. Foote, Eng & Min J 102:857-60 N 11 '16
Hollinger mining costs. Eng & Min J 102:23 J 1 '16
Making a cost profile. P. L. Mathews, Coal Age 10:751-2 N 4 '16
Mine-equipment cost. Coal Age 10:35-6 J 1 '16
Mining and milling practice at Santa Gertrudis. H. Rose, Am Inst Min E Bul 116:1312-13 Ag '16; Same. Eng & Min J 102:375-6 Ag 26 '16
Mining methods at Mount Lyell. R. M. Murray, Eng & Min J 102:419 S 2 '16
Placer-mining methods and operating costs. C. Janin, U S Bur Mines Bul 121:42-58 '16; Excerpt (Cost data on hydrauliclicking). Eng & Contr 46:340-1 O 18 '16
Puzzle in mining costs. Coal Age 9:467-8 Mr 11 '16
Puzzle in mining costs. J. F. K. Brown, diag Coal Age 9:246-9 F 5 '16
Stoping in the Calumet and Arizona mines, Bisbee, Ariz. P. D. Wilson, Am Inst Min E Bul 115:1101, 1115-17 J 1 '16
Underground mining methods of Utah copper co. T. S. Carnahan, diags Am Inst Min E Bul 109:60-3 Ja '16; Same cond. Eng & Min J 101:218-19 Ja 29 '16
See also Drilling and boring (earth and rocks)—Cost; Mine haulage—Cost

Mining dividends. See Mining industry and finance

Mining engineering

- Broken Hill underground mining methods. E. J. Horwood. diags Am Inst Min E Bul 109:65-89 Ja '16; Discussion. 113:885 My '16
Cause of Rand earth tremors. A. C. Key. Eng & Min J 101:995-6 Je 3 '16
Conservation of mineral resources. H. M. Chance. Eng & Min J 100:913-14 D 4 '15
Coöperative effort in mining. J. P. Hodgson. Am Inst Min E Bul 113:867-9 My '16; Discussion. 120:2168-72 D '16
Dropping ore through a 1,135-ft. raise. C. M. Carter. il Eng & Min J 101:262 F 5 '16
Gilman cut-and-fill system of mining. R. H. Dickson. il diags Eng & Min J 101:631-3 Ap 8 '16
Imagination applied to mining. J. F. K. Brown. Coal Age 10:142-4 J 22 '16
Improved mining and metallurgy an aid to conservation. L. D. Ricketts. Eng & Min J 101:291-2 F 12 '16
Inexpensive exploration plant. Eng & Min J 102:261 Ag 5 '16
Metal-mine accidents in the United States during the calendar year 1914. A. H. Fay. U S Bur Mines Tech Pa 129:1-96 '16; Excerpt (Accidents classified by mining methods). Eng & Min J 101:633-6 Ap 8 '16
Methods and costs of driving a 9x10-ft. drift. J. E. Hayden. diags Eng & Contr 44:451 D 8 '15
Mining ore from pillars. H. H. Hodgkinson. diags plan Eng & Min J 102:217-19 J 29 '16
Mitchell top-slice and caving system. R. H. Dickson. diags Eng & Min J 101:545-9 Mr 25 '16
Ore-drawing tests and the resulting mining method of Inspiration consolidated copper co. G. R. Lehman. il diags Am Inst Min E Bul 117:1501-14 S '16
Rock drifting in the Morris-Lloyd mine. J. E. Hayden. diags Eng & Min J 101:354-5 F 19 '16
Stopping in the Calumet and Arizona mines. Bisbee, Ariz. P. D. Wilson. diags Am Inst Min E Bul 115:1099-1117 J 1 '16
Stripping the overburden in openpit mining. L. O. Kellogg. il Eng M 50:896-909 Mr '16
Underground mining methods of Utah copper co. T. S. Carnahan. diags Am Inst Min E Bul 109:51-64 Ja '16; Same cond. Eng & Min J 101:216-20 Ja 29 '16

See also Blasting; Coal mines and mining; Compressed air in mining; Drilling and boring (earth and rocks); Explosives; Electricity in mining; Hydraulic mining; Iron mines and mining; Mine drainage; Mine fires; Mine haulage; Mine hoisting; Mine inspection; Mine lighting; Mine management; Mine shafts; Mine signals; Mine surveying; Mine timbering; Mine ventilation; Mines and mineral resources; Mining engineers; Mining machinery; Ore handling; Ore sampling; Prospecting; Rock drills; Shaft sinking; Tunnels and tunneling

Examinations

- Examination questions. See weekly numbers of the Coal age
Metal miners' examination. Eng & Min J 101:13-14 Ja 1 '16

Power

- Canonsburg gas coal co.'s plant. C. M. Means. il Coal Age 8:921-2 D 4 '15
Compressed-air equalizing system at Copper Queen. F. M. Heidelberg. diags plan Eng & Min J 100:1047-9 D 25 '15
Diesel engines versus steam turbines for mine power plants. H. Haas. il Am Inst Min E Bul 115:1171-83 J 1 '16; Excerpts. Met & Chem Eng 15:156-7 Ag 1 '16; Abstract. Am Soc M E J 38:674-5 Ag '16; Abstract. Iron Age 98:291 Ag 10 '16; Excerpts. Engineer 122:324 O 13 '16; Discussion. Am Inst Min E Bul 120:2213-22 D '16
Lucerne mines power plant. W. O. Rogers. il Power 44:42-5 J 11 '16
Modern mine-plant design. M. L. Hyde. diags plans Coal Age 8:742-7, 790-4 N 6-13 '15

- Power plant of the Burro mountain copper co. C: Legrand. plans Am Inst Min E Bul 117:1531-8 S '16; Abstract. Am Soc M E J 38:833-4 O '16; Discussion. Am Inst Min E Bul 120:2181-3 D '16
Practical considerations relative to purchased power. H. P. Musser and F. B. Lamb. Coal Age 10:15-16 J 1 '16
Steam-electric power plant of Alaska mine. il Elec R & W Elec'n 67:1097-1100 D 18 '15
Steam vs. compressed-air line. diag Coal Age 9:1027 Je 10 '16
Utah transmission line to be extended to large coal mines. Elec W 67:1242 My 27 '16
See also Electricity in mining

Safety measures

- Accidents at Anaconda's mines and their prevention. R. S. Foster and W. C. Douglass. il Eng & Min J 101:593-4 Ap 1 '16
Canary is not a safe test of deoxygenated air. Coal Age 8:842-3 N 20 '15
Detroit mine safety meet. R. D. Hall. Eng & Min J 102:834-5 N 4 '16
Don'ts for motormen. J. T. Reynolds. Coal Age 8:840 N 20 '15
Effects of atmospheres deficient in oxygen on small animals and on men. G. A. Burrell and G. G. Oberfell. U S Bur Mines Tech Pa 122:1-10 '15
Insulated car hitching. H. C. Elkins. diag Coal Age 9:484 Mr 18 '16
Mine safety in California. Coal Age 9:977-8 Je 3 '16
National safety council meets. R. D. Hall. Coal Age 10:716-19, 749-50 O 28-N 4 '16
Safety and efficiency. C. J. Fuetter. diag Coal Age 10:377 S 2 '16
Safety trolley-wire box. diags Eng & Min J 101:857-8 My 13 '16
Safety work of the Sloss-Sheffield steel and iron co. B. M. Starnes. Coal Age 10:586-7 O 7 '16
Semiautomatic safety gate for mine shafts. J. C. Bennett. diags Eng & Min J 101:393-4 F 25 '16
Simple shaft gate. il Coal Age 8:1003 D 18 '15
Storage and handling of explosives in mines. C: E. Munroe. Eng & Min J 101:349-52 F 19 '16
Useful safety catch. W. H. Luxton. diag Coal Age 10:569 O 7 '16
See also Coal mines and mining—Safety measures; Mine hoisting—Safety devices and measures; Mine rescue work; Mining laws; Safety lamps

Water supply

- Mine plant water system. Eng & Min J 101:1073 Je 17 '16

Mining engineers

- Mining and military engineers past and present. Eng & Min J 100:997 D 18 '15
Mining members of industrial preparedness committee. Eng & Min J 101:929-30 My 27 '16
Santa Ysabel massacre. il Eng & Min J 101:190-4 Ja 22 '16

- Mining engineers. American institute of. See American institute of mining engineers

- Mining engineers. Institution of. See Institution of mining engineers

- Mining equipment. See Mine equipment

Mining industry and finance

- Butte & Superior mining co.; report for 1916. Eng & Min J 102:455 S 9 '16
Canadian mining corporation. Eng & Min J 102:348-9 Ag 19 '16
Chronology of mining for 1915. Eng & Min J 101:73-4 Ja 8 '16
Data of the world's principal mines. S. F. Shaw. Eng & Min J 101:86-8 Ja 8 '16
December mining dividends. Eng & Min J 101:27 Ja 1 '16
General review of mining in the United States in 1915. P. E. Barbour. Eng & Min J 101:105-16 Ja 8 '16
How to sell a mine. Eng & Min J 102:219 J 29 '16
How to sell a mine. F. F. Sharpless. Eng & Min J 102:356 Ag 19 '16
How to sell a mine. J: T. Reid. Eng & Min J 102:556 S 23 '16

Mining industry and finance—Continued

Mining and metallurgical construction in 1915.

Eng & Min J 101:75-8 Ja 8 '16

Mining dividends in 1915. Eng & Min J 101:

83-6 Ja 8 '16

Mining stocks in 1915 on the New York ex-

changes. Eng & Min J 101:80-1 Ja 8 '16

Post-bellum mineral production. A. Selwyn-

Brown. Eng M 50:601-6 Ja '16

See also Metal trade; Mine accounting;
Mine taxation; Mine valuation; Mineral
lands; Mines and mineral resources; Mining
costs; Mining laws; Ore sampling

Australia

Mining in Australia. Eng & Min J 102:85-6

Jl 8 '16

Japan

Japanese mining expansion. Eng & Min J 102:

143-4 Jl 15 '16

Mining institute, Canadian. See Canadian min-

ing institute

Mining laws

Abstracts of current decisions on mines and

mining, May to September, 1915. J. W.

Thompson. U S Bur Mines Bul 113:1-122 '16

Abstracts of current decisions on mines and

mining, reported from October to December,

1915. J. W. Thompson. U S Bur Mines Bul

118:1-72 '16

Antecedent mineral discovery requirement.

E. D. Gardner. Am Inst Min E Bul 117:1693-

1707 S '16; Discussion. 120:2200-3 D '16

Carranza's latest mining decree. Eng & Min J

102:717-18 O 14 '16

How Illinois uses a commission to prepare its

mine laws. A. J. Moorshead. Coal Age 10:

846-7 N 18 '16

Metal-mine accidents in the United States;

laws relating to reporting of accidents. A. H.

Fay. U S Bur Mines Tech Pa 129:89-96 '16

New Honduran mining laws. Eng & Min J 101:

428, 769 Mr 4, Ap 29 '16

Proposed change of mining code. R. B. Brins-

made. Eng & Min J 102:355-6 Ag 19 '16

Revision of United States mining laws. Eng &

Min J 100:1058-61; 101:568, 787-8; 102:153,

398-400, 472, 518, 719-22, 751-3, 832-3, 869-70,

955-6 D 25 '15, Mr 25, Ap 29, Jl 15, Ag 26, S

9-16, O 14-21, N 4-11, 25 '16

Trip through Honduras. D. McBride. Eng &

Min J 102:853-4 N 11 '16

Uniform mine legislation. Coal Age 9:121-2,

877-8, 927-8 Ja '15, My 20-27 '16

See also Mine taxation; Mineral lands

Mining machinery

Manganese-steel castings in the mining in-

dustry. W. S. McKee. il diag Am Inst Min

E Bul 108:2399-411 D '15; Same. Iron Tr R

57:1077-81 D 2 '15; Same cond. Iron Age 96:

1362-5 D 9 '15; Discussion. Am Inst Min E

Bul 113:929-30 My '16

Portable mining equipment for prospects.

L. A. Rehfuess and W. C. Rehfuess. il diags

Eng & Min J 101:1025-7 Je 10 '16

Prices of machinery for mines. Coal Age 10:

22-5 Jl 1 '16

See also Coal cutters; Coal mining machin-

ery; Compressed air in mining; Conveying

machinery; Electricity in mining; Excavating

machinery; Hoisting machinery; Jigs (min-

ing); Mine haulage; Mine hoisting; Ore

treatment; Rock drills; Shovel machines;

Stamp mills; Steam shovels

Mining supply. See Mine equipment

Mining terms

Abstracts of current decisions on mines and

mining, May to September, 1915. J. W.

Thompson. U S Bur Mines Bul 113:14 '16

Nomenclature of mining methods. G. J. Young.

Eng & Min J 102:175-8 Jl 22 '16

Mining towns

Extensions of Y. M. C. A. work in mining

villages. C. R. Towson. il Coal Age 9:342-3 F

19 '16

Locust mountain village. C. M. Young. il Coal

Age 9:383-4 F 26 '16

Making a coal town livable. C. M. Young. il

Coal Age 9:851-2 My 13 '16

New era for mining towns. K. B. Lohman.

plan Coal Age 8:799-800 N 13 '15

Park-development problems in the hard-coal

region. K. B. Lohman. il plan Coal Age 9:

914-17 My 27 '16

School grounds in coal towns. K. B. Lohman.

il plan Coal Age 9:423-4 Mr 4 '16

See also Miners' houses; Mining camps

Minium. See Red lead

Minneapolis, Minnesota**Architecture**

Civic improvement of Minneapolis. G. B. Ford.

il Am Inst Arch J 4:427-9 O '16

Bridges

2,223-ft. concrete-arch bridge built on reverse

curve. A. M. Richter. il diags plans Eng N

74:1268-72 D 30 '15

Industries and resources

Twin-City power plants. T. Wilson. il Power

44:332-9 S 5 '16

Railroads

Track depression project at Minneapolis. C. N.

Bainbridge. il diags Ry Age 59:1059-63 D 3

'15

Minneapolis, St. Paul & Sault Ste. Marie rail-

road

Financial statistics. map Ry Age 61:980-1 D 1

'16

Minnesota. See Drainage—Minnesota; Iron mines

and mining—Minnesota; Roads—Minnesota

Minnesota surveyors and engineers' society

21st annual meeting, St. Paul, Feb. 10-12.

Eng N 75:337-8 F 17 '16

Mississippi river

Blasting a canal through a river bottom. O. R.

Geyer. il Sci Am 114:479 My 6 '16

Coming restoration of the Mississippi as an

important artery of commerce. O. R. Geyer.

il Sci Am 114:215+ F 26 '16

Experimental concrete revetment proves fea-

sible and economical. E. M. Markham. il Eng

Rec 74:614-15 N 18 '16

Father of waters in flood. E. M. Markham.

Eng N 75:286-7 F 10 '16

Hydraulic-fill and wheeled-scrappers for levees.

il plan Eng N 76:158-60 Jl 27 '16

Improving navigation on the upper Mississippi

near Le Claire, Iowa. il map Eng Rec 72:785-

6 D 25 '15

Levee system is expected to protect Memphis

against future floods. J. H. Weatherford.

diags map Eng Rec 73:775-7 Je 10 '16

Mississippi levee system. A. L. Dabney. Eng

N 76:228 Ag 3 '16

Mississippi river flood records studied with

relation to levee grades. A. L. Dabney. map

Eng Rec 73:452-5 Ap 1 '16

Mississippi river stages, 1915, and hydrograph,

1861-1914. J. W. Skelly. Eng N 75:350-1 F 24

'16

Modernizing Mississippi river transportation.

il diags Sci Am 114:531+ My 20 '16

Oil-engine driven steel barge for river freight

traffic. il diags Eng N 75:864-5 My 4 '16

Winter work in the construction and repair

of dams and shore protections in the

United States improvement of the upper

Mississippi river. C. W. Durham. il map

Eng & Contr 45:251-3 Mr 15 '16

Missouri. See Lead mines and mining—Missouri

Missouri, Kansas & Texas railway

Abstract of annual report. map Ry Age 59:

1042-5 D 3 '15

Missouri Pacific railroad

Abstract of annual report for 1916. map Ry

Age 61:680-2 O 20 '16

Missouri river

Bank protection above Sibley bridge; Santa Fe

Ry. il map Eng N 75:638-40 Ap 6 '16

Missouri state association of master plumbers

32d annual convention, St. Louis, Mar. 6-7.

Dom Eng 74:333-5 Mr 11 '16

Mistletoe

Mistletoe, an insidious pest, to be extermi-

nated. il Sci Am 115:460 N 18 '16

Mixers, Concrete. See Concrete mixers

Mobilization camps. See Camps, Military

Mobilization of militia. See United States—Militia—Mobilization, 1916

Model towns

- Morgan Park—a beautiful steel-mill town. il plans map Iron Age 97:48-52 Ja 6 '16
Planning the industrial town of Iroquois Falls, Ontario. A. P. Melton. plan Eng & Contr 45: 524-6 Je 7 '16
Warm air heating in a northern city; Morgan Park, Minn. il diag plans Metal Work 85: 606-9+ My 5 '16

Models

- Principle of similitude in engineering design. T. E. Stanton. Engineer 122:356-7 O 20 '16

Moisture

- Hygroscopic properties of sodium, potassium and ammonium nitrates, potassium chlorate and mercury fulminate. G. B. Taylor and W. C. Cope. Met & Chem Eng 15:140-3 Ag 1 '16

Moisture of the air. See Humidity

Molding. See Foundry practice

Molding machines

Can molding machines be applied to my work?

- L. R. Palmer. diags Foundry 44:301-2 Ag '16
Combination squeeze and jolt machine. il Foundry 44:332 Ag '16

Continuous melting in a small foundry. G. S. Evans. il Iron Age 97:709-12 Mr 23 '16

Electro-pneumatic jolt-ramming machine. il Foundry 44:39 Ja '16

Hand jar-ramming and squeezer molding machine. il Foundry 44:250 Je '16

Hand squeezer molding machine. il Iron Age 97:833 Ap 6 '16

Jar-ramming molding machine. diag Foundry 44:39-40 Ja '16

Jolt-ram machines for light castings. il Iron Age 97:79-82 Ja 6 '16

Jolt ram moulding machines. il diags Engineer 121:24-5 Ja 7 '16

Jolt-ramming attachment for power squeezers. diag Foundry 44:124 Mr '16

Jolt ramming device on plain split pattern machine. Foundry 43:510-11 D '15

Kimball multiple molding machine. il Foundry 43:511-12 D '15

Krause electro-pneumatic jolt ramming machine. W. P. Krause. il diag Sibley J 30: 201-2 Mr '16

Machine-molding a grinding mill frame. G. Buchanan. il Foundry 44:51-2 F '16

Making parts for sewing machines. H. C. Estep. il Iron Tr R 58:331-7 F 10 '16

Mounting patterns for molding machine work. E. I. Chase. diags Foundry 44:57-9 F '16

Mumford machine. il Iron Age 98:708 S 28 '16

Pattern plates for reducing operating costs. D. Dalrymple. il diags Foundry 44:10-15 Ja '16

Power squeezer. il Foundry 44:81 F '16

Production methods in gas engine plant. O. J. Abell. il Iron Age 98:533-5 S 7 '16

Recent improvements in foundry operations. T. D. West. il diags Foundry 43:483-9; 44: 29-34 D '15-Ja '16

Stripping plate machines built by the S. Freeman & sons co. il Foundry 44:165-7 Ap '16

Molding sand. See Sand, Foundry

Molecular compounds

- Organic molecular compounds. J. F. Norris. Am Chem Soc J 38:702-11 Mr '16

Molecular rearrangements. See Stereochemistry

Molecular rotation

- Numerical relations among the rotatory powers of the compound sugars. C. S. Hudson. Am Chem Soc J 38:1566-75 Ag '16

Optical rotatory powers of some acetylated derivatives of maltose, cellose and lactose. C. S. Hudson and R. Sayre. Am Chem Soc J 38:1867-73 S '16

Molecular weights

- Molecular weight of some alcoholates of chloral and butylchloral in benzene solution. M. Willcox and R. F. Brunel. Am Chem Soc J 38:2533-5 N '16

Molecular weights of gases by an evaporation method. H. L. Trumbull. Am Chem Soc J 37:2662-7 D '15

Varnish analysis and varnish control; molecular weights of vegetable oils. M. Y. Seaton and G. B. Sawyer. J Ind & Eng Chem 8: 490-3 Je '16

See also Cryoscopy

Molecules

Atom and the molecule. G. N. Lewis. diags Am Chem Soc J 38:762-85 Ap '16

Oil films on water and on mercury. H. Devaux. Sci Am S 81:24-7 Ja 8 '16

See also Atoms; Molecular rotation; Molecular weights; Stereochemistry

Mollusks

Production of light by animals. U. Dahlgren. il J Fr Inst 181:386-400 Mr '16

Molybdenite

Concentration of Canadian molybdenite ores; abstract. H. E. Wood. Met & Chem Eng 14: 328 Mr 15 '16

Molybdenum

Development of practical substitutes for platinum and its alloys, with special reference to alloys of tungsten and molybdenum. F. A. Fahrenwald. il diags Am Inst Min E Bul 109:103-49 Ja '16; Summary. Met & Chem Eng 14:339 Mr 15 '16

Improved test for molybdenum. G. A. James. Eng & Min J 102:141 J1 15 '16

Metallurgical treatment of molybdenum ores; abstract. H. Fleck. Met & Chem Eng 15: 652-3 D 1 '16

Molybdenum as a steel alloy. Sci Am 115:403 N 4 '16

New tests for molybdenum; abstract. J. Moir. Met & Chem Eng 15:101 J1 15 '16

Recovery of molybdenum from laboratory waste. J. A. Prescott. Eng & Min J 100:1012 D 18 '15

System tungsten-molybdenum. F. A. Fahrenwald. il Am Inst Min E Bul 114:1049-55 Je '16

Treatise on molybdenum. H. Fleck. Iron Age 98:1117 N 16 '16

Tungsten-molybdenum equilibrium diagram and system of crystallization. Z. Jeffries. il diag Am Inst Min E Bul 115:1225-36 J1 '16

Tungsten-molybdenum ore concentration. A. J. Robertson. Eng & Min J 102:126-7 J1 15 '16

Molybdenum steel

Chemical and mechanical relations of iron, molybdenum and carbon; abstracts. J. O. Arnold and A. A. Read. Engineer 120:498 N 26 '15; Iron Age 96:1426 D 16 '15; Am Soc M E J 38:91 Ja '16

Moments of inertia

Determining center of gravity and moment of inertia. H. B. Wrigley. Automobile 35:50 J1 13 '16

Tables for determining the moment of inertia of rectangles. C. H. Fairis. Ry Mech Eng 90:184 Ap '16

Why is the product Ar^2 called the moment of inertia? Mach 23:63 S '16

Monazite

Introduction of electromagnetic separators marked increase in quality and quantity of monazite output. R. Gordon. il Am Gas Light J 105:17-19 J1 10 '16

Separation of the rare earths giving the more soluble double sulfates from Brazilian monazite sand. C. James and A. J. Grant. Am Chem Soc J 38:41-7 Ja '16

Monel metal

Monel metal castings. Foundry 44:26 Ja '16
New uses of monel-metal. Met & Chem Eng 14:110 Ja 15 '16

Money

Cotton goods in China. R. M. Odell. U S Bur For & Dom Com 107:123-6 '16; Same. Sci Am S 81:169 Mr 11 '16

Uniform monetary system for Pan-America not desired. V. Gonzales. Am Ind 16:26-9 F '16

See also Banks and banking; Capital; Checks; Credit; Investments; Prices

Monorails. See Telpherage

Monorailways. See Suspended railways

Monroe doctrine

Monroe doctrine a Pan-American doctrine. J. Barrett. Eng & Min J 101:301-2 F 12 '16

Montana

See also Copper mines and mining—Montana; Mines and mineral resources—Montana; also Glacier national park

Montana power company

High tension switching equipment. J. W. Upp. il plan Gen Elec R 19:383-94 N '16

Montana power company and its part in the electrification of railways. J. D. Ryan. il map Gen Elec R 19:915-22 N '16

Montclair, New Jersey**Water supply**

Suggested milk of lime cure for red water. Montclair water supply. N: S. Hill, jr. Eng & Contr 46:232 S 13 '16

Montreal**Public works**

Engineers condemn Montreal's municipal power plant. map Eng N 76:1048-9 N 30 '16

Railroads

Tunnel drill carriages—their economic possibilities. S. P. Brown. il diag map Eng Rec 73:38-42, 77-81, 109-12 Ja 8-22 '16

Montreal & Southern Counties railway

St. Cesaire-Granby extension forms a new milestone in Canadian high-speed electric railway development. il Elec Ry J 48:395-6 S 2 '16

Monuments

Monument at Liverpool in honor of marine engineers. il Power 44:260-1 Ag 22 '16

See also Tombs

Moon

Meteorology of the moon. W. H. Pickering. il Sci Am S 81:188-90 Mr 18 '16

Movements of the moon. P. Johnson. Sci Am S 82:194-5, 214 S 23-30 '16

Morgan Park, Minnesota. *See* Duluth, Minnesota**Morphine**

Quantitative determination of morphine in the various organs when injected into cats and rabbits. A. W. Homberger and J. C. Munch. Am Chem Soc J 38:1873-6 S '16

Morrison, James Frank, 1841-1916

Sketch. por Elec R & W Elec'n 69:95 JI 15 '16; Elec W 68:117 JI 15 '16

Mortar

Does mortar made from fine sand harden slowly? Concrete 8:180-1 Ap '16

Joint mortar exposed to tidal currents. J. L. Howard. Boston Soc C E J 3:27 Ja '16

Mortars for brick and stone masonry. W. H. Hefelfinger. diag Bldg Age 38:49-50 My; 64-5 Je '16

Prepared mortar as a cure for present carelessness. Eng Rec 74:508 O 21 '16

Value of hydrated lime in cement mortar. J. S. Macgregor. Munic Eng 51:120+ S '16

See also Concrete

Testing

Investigation of lime-cement mortars. J. S. Macgregor. Concrete 9:84 S '16; Abstract. Eng Rec 74:165 Ag 5 '16

Tensile strength of Portland cement mortars, containing lime. M. O. Fuller. Concrete 9:89-91 S '16

Tests of mortars. H. Burchard. Concrete 8: 179 Ap '16

Mortars (ordnance)

Physics of a smoke ring. L. F. J. Zerbee. Sci Am 114:618 Je 10 '16

Mosaics

Notes on early mosaic work. R. I. Geare. il Arch Rec 40:190-2 Ag '16

Mosquitoes

Dikes and tide gates help control mosquitoes. map Eng Rec 74:449 O 7 '16

Four years' experience in mosquito extermination at Philadelphia. W. H. Connell. Eng & Contr 45:372 Ap 19 '16

Mosquito elimination survey at Toledo, O. map Munic J 41:322-3 S 14 '16

Mosquito extermination in Panama and New Jersey. H. I. Eaton. il Boston Soc C E J 3: 259-70 Je '16

Mosses

See also Sphagnum moss

Motion. *See* Mechanics; Perpetual motion; Rolling; Spud; Vibration

Motion pictures. *See* Moving pictures

Motion study

Educating workers for higher efficiency. F. B. Gilbreth and L. M. Gilbreth. il Iron Age 96:1530-3 D 30 '15

Motion models. F. B. Gilbreth and L. M. Gilbreth. J Rr Inst 181:241 F '16

Motion study as a production factor. il Automobile 35:854-5 N 16 '16

Motion study for the crippled soldier. F. B. Gilbreth. il Am Soc M E J 37:669-73 D '15; Same. Sci Am S 80:402-3 D 25 '15; Discussion. Am Soc M E J 37:673-5 D '15

Motor barges

Steamboat, floating bridge, or barge? J. H. Bernhard. il Eng M 50:773-5 F '16

Motor boats

Largest gasoline ferryboat; Ramon. il Sci Am S 81:60 Ja 22 '16

Motor boats of the volunteer patrol squadron. il Sci Am 114:15 Ja 1 '16

Patrol squadron; privately owned motor boats pledged to national defense. il Sci Am 114: 511 My 13 '16

Wireless for motorboats. Sci Am S 81:411 Je 24 '16

See also Motor barges; Motor ships

Motor buses

American motor omnibus. il Engineer 120:511 N 26 '15

Auto-bus line in Seattle. il Elec Ry J 47:164 Ja 22 '16

Constant-mesh gears for new buses. il Automobile 34:1167-8 Je 29 '16

Data on motor 'bus design. Horseless Age 36: 501 D 1 '15

Motor buses in London. T. B. Goodyer. Elec Ry J 47:218-19 Ja 29 '16

Omnibus construction graduated from both peace and war service. diag Automobile 34:1026-9 Je 8 '16

Pacific electric railway experiments with motor bus feeders. il Elec Ry J 48:314 Ag 19 '16

Trackless trolley vs. motor omnibus. Elec Ry J 47:442 Mr 4 '16

Trailer that converts any automobile into an eighteen-passenger bus. il diag Sci Am 115: 176 Ag 19 '16

See also jitney buses

Cost of operation

Cost of motor buses. Elec Ry J 46:1216 D 18 '15

Motor cars. *See* Automobiles; Electric vehicles; Motor trucks

Motor cars (railroad)

Electrical transmission on a New Zealand gas-electric motor car. il diag Elec R & W Elec'n 67:1034-5 D 4 '15

Ingenious electric drive gear adapted for light railway work. il diag Sci Am S 81:76 Ja 29 '16

Light gasoline motor car for passenger service. C. E. Hunt. il Ry Age 60:246-7 F 11 '16

McKeen Mallet motor car for Southern Utah railroad. plan Elec Ry J 47:1099 Je 10 '16; Ry R 58:823 Je 10 '16

McKeen motor car for the Ferrocarriles del Norte de Cuba. il Ry R 59:488 O 7 '16

Maintenance of gasoline motor cars. M. E. Carroll. Ry Age 60:511-12 Mr 17 '16

New motor cars of the Kalamazoo railway supply co. il Ry R 58:482 Ap 1 '16

New York commission suggests that railroads consider self-propelled cars. Elec Ry J 47: 328-9 F 12 '16

Steam motor car used by Vermont railroad. il Elec Ry J 48:506 S 16 '16

Thomas transmission motor car. il Ry Age 61: 366-7 S 1 '16

Bibliography

List of references on railway motor cars. Bureau of railway economics, Washington, D. C. 37p N 30 '15 (Typew)

Motor cars (railroad)—Continued**Storage battery**

- Storage-battery car shows low operating cost. Elec Ry J 47:466 Mr 4 '16
 Storage-battery car, West Point, Ga. il plan Elec Ry J 48:368-9 Ag 26 '16

Motor cycles

- Novel two-stroke engine. J. A. Fish. il diag Sibley J 31:22-4 O '16

Motor cycles in war

- American motorcycles for the European fighting men. il Sci Am 114:154 F 5 '16
 Motorcycle ambulance of double-decker design. il Sci Am 115:326 O 7 '16
 Motorcycle radio stations as a factor in military operations. il Sci Am 114:219 F 26 '16

Motor fire apparatus. See Fire apparatus, Motor**Motor generators**

- Arrangement for the interchange of energy between isolated plant and central station. C. H. Shaw. plan Elec W 67:602-3 Mr 11 '16
 Construction features of a 2000-kw. motor-generator installed by Pacific gas & electric company, Oakland. il Elec W 67:377-8 F 12 '16
 Description of the 1500- and 2000-kw., 3000-volt D-C motor-generator sets of the Chicago, Milwaukee & St. Paul railway. F. C. Helms and C. M. Fulk. il diag Gen Elec R 103:80-5 N '16
 Drying out motor generator sets. J. G. Koppel. il diag Elec Ry J 48:67 J1 8 '16
 Effect of decreased frequency on operation of an induction-motor generator set. E. C. Parham. Elec W 67:43 Ja 1 '16
 Faulty parallel operation of motor generators. N. P. Hoisington. diag Elec W 68:320-1 Ag 12 '16
 Fort Wayne motor-generator set for automobile-battery charging. il Elec R & W Elec'n 69:735-6 O 21 '16
 Motion-picture motor-generator set. il Elec W 67:952-3 Ap 22 '16
 Motor-generator set for motion picture theater. il Elec W 67:1378 Je 10 '16; Elec R & W Elec'n 69:41 J1 1 '16
 New electric hoist of the North Butte mining co., by F. Moeller; with a note on preliminary calculation of flywheel motor-generator sets, by C. D. Gilpin. il diag Am Inst Min E Bul 110:343-54 F '16
 Portable motor-generator set used for cable testing. il diag Elec W 68:374 Ag 19 '16
 Robbins & Myers battery-charging motor-generator outfit. il Elec R & W Elec'n 69:737 O 21 '16; Elec W 68:876 O 28 '16
 Rotating converting apparatus for motion-picture arcs. il Elec W 67:726-7 Mr 25 '16
 Synchronous converters and motor-generator sets. J. L. Burnham. il diag Gen Elec R 19:457-63 Je 16 '16
 Using garage synchronous motor to correct line power-factor. F. C. Taylor. il diag Elec W 67:600 Mr 11 '16

Motor lawn mowers. See Lawn mowers, Motor**Motor omnibuses.** See Motor buses**Motor plows**

- Coming of the motor plough. il diag Engineer 120:361-4, 403-10, 476-8, 630-1 O 15, 29, N 19, D 31 '15
 French power ploughing trials. Engineer 120:570-1, 591-2, 618-20 D 17-31 '15
 Small motor plows. il plan Sci Am 115:374+ O 21 '16

See also Agricultural machinery

Motor ships

- American-designed working boat for Cartagena, Columbia. plans Int Marine Eng 21:487 N '16
 Auxiliary motor ship City of Portland. K. Mc Alpin. il Int Marine Eng 21:292-4 Je '16
 Auxiliary schooner Annie Johnson, iron barque built in 1872. E. O. Perkins. il plans Int Marine Eng 21:406-7 S '16
 First Diesel-engined vessel for the United States navy. Int Marine Eng 20:532-3 D '15
 Gain of cargo capacity in motor ship of about 3,000 tons deadweight capacity. R. W. Crowley. diag Int Marine Eng 21:400-1 S '16
 Motor ship Chile. il Engineer 121:67 Ja 21 '16

Motor ship Oregon. il Int Marine Eng 21:335 J1 '16

Motor ship (Sembilan) five-and-a-half years' service. il Int Marine Eng 21:238-9 My '16

See also Diesel engines, Marine; Gas and oil engines, Marine; Motor barges; Motor boats

Repair

Repair costs of motor ships. Int Marine Eng 21:51 F '16

Motor truck industry

- Dealer and the motor truck agency. R. W. Hutchinson, jr. il Horseless Age 37:296-7+; 38:302-3+ Ap 15, N 1 '16
 Directory of motor truck makers. Automobile 34:83-5; 35:751-3 Ja 13, N 2 '16
 Effect on industry of standard truck. Automobile 35:444-5 S 14 '16
 Making money selling trucks. R. W. Hutchinson, jr. il Horseless Age 38:495+ J1 1 '16
 Motor trucks after the war. R. W. Hutchinson, jr. il Eng M 50:572-92 Ja '16
 1916 output 98,000 trucks. D. M. Lay. Automobile 35:744-5+ N 2 '16
 129 makes of trucks in Kansas. Automobile 35:177 Ag 3 '16
 Picking the right truck to sell. R. W. Hutchinson, jr. il Horseless Age 38:217-18 O 1 '16
 Selecting the truck salesman. R. W. Hutchinson, jr. il Horseless Age 38:184-5 S 15 '16
 Time payment plan for trucks. Automobile 35:789+ N 9 '16
 Truck industry triumphant. A. L. Clayden. Automobile 34:55-7 Ja 13 '16
 Truck's emancipation. A. L. Clayden. diag Automobile 35:739-43 N 2 '16

See also Automobile industry; Tractor industry

Advertising

Motor truck advertising for contractors. Eng & Contr 45:289-90 Mr 29 '16

Motor truck subsidies

- Foreign motor truck subsidy requirements. il diag Sci Am 114:306+ Mr 18 '16
 Military truck a complicated problem. A. L. Clayden. Automobile 35:750-1+ N 2 '16

Motor truck trailers

- Articulated trailer for contractors' use. il Eng N 75:125 Ja 20 '16
 Contractors' wagons. il Munic J 40:26 Ja 6 '16
 Knox tractors in municipal haulage. il Munic Eng 50:38-9 Ja '16
 Tractor and trailer test at Cincinnati, Ohio. il Good Roads n s 10:313-14 D 4 '15; Eng Rec 72:726 D 11 '15
 Tractors and trailers in municipal work. il Munic J 39:876-9 D 9 '15
 Trailers with motor trucks. J. Younger; G. R. Pennington. Eng Rec 74:23-4 J1 1 '16
 When is it feasible and economical to use trailers with motor trucks? Eng Rec 73:420-1 Mr 25 '16

Motor trucks

- Acme two-ton worm-drive truck. il Horseless Age 36:466 N 15 '15
 Atlas thousand pound commercial car. il Horseless Age 37:236-7 Mr 15 '16
 Bourne truck has magnetic transmission. il diag Automobile 35:713 O 26 '16
 Burford truck in 2 and 4-ton models. il Automobile 35:489 S 21 '16
 Burford worm and internal gear trucks. il Horseless Age 38:82-3 Ag 1 '16
 Canadian truck simple in production and operation. il Automobile 35:940-1+ N 30 '16
 Collier is rugged light truck. diag Automobile 35:622 O 12 '16
 Commerce adds 1-ton model. il Automobile 35:666-7 O 19 '16
 Commercial motor vehicles for railway and industrial purposes. Am Soc M E J 38:937-8 N '16
 Converting pleasure cars into trucks. il Sci Am 113:544 D 18 '15
 Croce light delivery car. il Horseless Age 37:288 Ap 1 '16
 Day-Elder worm-drive trucks. il Automobile 35:57 J1 13 '16
 Day-Elder worm-drive trucks announced. il Horseless Age 38:54-5 J1 15 '16
 Denmo 1¼ ton truck. il Horseless Age 38:170 S 1 '16

Motor trucks — Continued

Denmo (1000-lb.) has electric system. *il* Automobile 35:625 O 12 '16

Development in commercial vehicle design. *il* Sci Am 114:16-17+ Ja 1 '16

Economy of motor trucks for combination shop. *il* Metal Work 86:347 S 15 '16

Features of 1916 motor truck design. V: W. Pagé. *il* diags Sci Am 114:250-1+ Mr 4 '16

Few changes in truck design. diags Automobile 35:746-8 N 2 '16

Four new Wichita worm-driven trucks. *il* Horseless Age 36:428 N 1 '15

Gabriel line features two worm-drive trucks. *il* Horseless Age 36:435 N 1 '15

German truck design is improved. E. A. Langdon. Automobile 35:850-2 N 16 '16

Hints for trucking contractors; appliances to facilitate the handling of motor truck loads. *il* Eng & Contr 46:338-9 O 18 '16

International truck. *il* Horseless Age 37:477 Je 15 '16

Italian truck makers flourishing. W. F. Bradley. *il* Automobile 34:60-3 Ja 13 '16

Jeffery announces two new trucks. *il* Horseless Age 37:424-5 Je 1 '16

Kelly-Springfield trucks. *il* Good Roads n s 11:176-7 Ap 1 '16; Automobile 34:455 Mr 9 '16; Textile World 51:1873 Ap 15 '16

Kissel brings out new two-tonner. *il* Automobile 34:977 Je 1 '16

Kissel motor car co. announces new truck. *il* Iron Tr R 57:1087 D 2 '15

Kissel motor company's worm drive truck. *il* Munic J 40:60 Ja 13 '16; Same. Munic Eng 49:237-8 D '15

Kissel two-tonner. *il* Horseless Age 37:438 Je 1 '16

KisselKar worm-drive truck. *il* Horseless Age 36:505 D 1 '15

Low-bed short-haul truck. *il* Sci Am 115:266 S 16 '16

Modern service trucks; important equipment for light, power, telephone and electric railway companies. *il* Sci Am S 82:196 S 23 '11

Motor trucks in southern California. W. H. Clapp. Am Soc M E J 33:788-95 O '16

New trucks show progress. *il* Automobile 34:226-30 F 3 '16

New two-way, side-dump motor truck body. *il* Good Roads n s 11:82 F 5 '16

Railways rapidly adopting emergency auto trucks for repair work. *il* Elec Ry J 48:152-3 J 22 '16

Rainier delivery car ready soon. *il* Automobile 35:320-1 Ag 24 '16

Rainier light delivery truck. *il* Horseless Age 38:242 O 1 '16

Refinements in truck design. H. D. Church. diags Automobile 35:20-3 J 16 '16

Republic—originality in 1500-lb. *il* Automobile 35:714 O 26 '16

Riker three and four ton worm drive trucks. *il* Horseless Age 37:242-3 Mr 15 '16

Service one-ton worm-drive truck. *il* Horseless Age 36:546 D 15 '15

Service worm drive trucks. *il* Horseless Age 37:194-5 Mr 1 '16

Sheridan commercial car. *il* Horseless Age 38:129 Ag 15 '16

Six-wheel motor truck by Chicago pneumatic tool co. Eng & Contr 45:25-6 Ja 5 '16

Six-wheeled truck. *il* Sci Am 113:544 D 18 '15

Sizes of motors for trucks and outline of British practice in this field. W. D. Williamson. Automobile 34:444-6, 476-7, 502-4, 541-3 Mr 9-23 '16

Special truck for circus use. diag Sci Am 114:534 My 20 '16

Stewart thousand pound truck. *il* Horseless Age 37:359 My 1 '16

Superior internal gear drive truck. *il* Horseless Age 36:508 D 1 '15

Thomas two-ton truck. *il* Horseless Age 38:84 Ag 1 '16

Truck design shows many changes. J. E. Schipper. Automobile 34:58-9+ Ja 13 '16

Truck's emancipation. A. L. Clayden. diags Automobile 35:739-43 N 2 '16

Two-way side dump motor truck makes unloading possible. *il* Eng Rec 72:776 D 18 '15

U. S. trucks in Mexico. J. E. Schipper. *il* Automobile 35:402-3 S 7 '16

Vellie worm-drive trucks of 1½-2 and 3½ tons. *il* Horseless Age 37:472-3 Je 15 '16

White combination road maintenance and construction truck. *il* Eng & Contr 45:495 My 31 '16

See also Automobiles; Electric trucks; Motor truck industry; Tires (automobile); Tractors

Axles

Floating bush bearings in live rear axles for trucks. G. W. Watson. diags Automobile 34:407-8 Mr 2 '16

Timken 5-ton worm-driven truck axle. *il* Automobile 35:31 J 16 '16; Horseless Age 38:57 J 15 '16

Cost of operation

Applying the motor truck to the ice business. R. C. Hargreaves. *il* Sibley J 30:90-3 D '15

Comparative costs of electric and gasoline vehicles. Elec R & W Elec'n 68:705-6 Ap 22 '16

Motor cars for field work, meter setting and repairs, Milwaukee water works. *il* Eng & Contr 45:504 My 31 '16

Motor truck lessens cost of maintaining gravel roads in Alabama. T. H. Edwards. *il* map Eng Rec 74:73-4 J 15 '16

Motor truck operation and accounting. C. A. Dickens. *il* Munic Eng 49:46-9, 130-6, sup 25+, sup23+, 50:sup23+, sup23+, sup23+, sup23+, sup23+, sup23+, 51:sup23+, sup23+, sup23+, sup23+, Ag, O '15-N '16

Motor truck operation at Mammoth Collins mine, Shultz, Ariz. W. G. McBride. Am Inst Min E Bul 115:1253-6 J 1 '16; Same cond. (Records of motor truck mine haulage costs). Eng & Contr 46:161 Ag 16 '16; Excerpt (Long distance haulage with motor trucks). Eng N 76:271 Ag 10 '16; Excerpt. Eng & Min J 102:709 O 14 '16

Motor truck service successful in New York city park departments. *il* Eng & Contr 45:550 Je 14 '16

Motor trucks in southern California; economics and costs. W. H. Clapp. Am Soc M E J 38:791-5 O '16; Same. Eng & Contr 46:343-7 O 18 '16; Same cond. Concrete 9:144-7 N '16

Motor trucks operated on long hauls over bad roads in West. G. F. Young. Eng Rec 73:557-8 Ap 22 '16

Operating cost records show comparative economy of 65 motor vehicles in Los Angeles water department. B. A. Heinly. *il* Eng Rec 73:728-32 Je 3 '16

Road traction by petrol, steam, and electric motor vehicles. G. M. Gamble. tables Engineer 121:182 F 25 '16

Why I bought a motor truck for my plumbing and heating business. *il* Dom Eng 76:192-4 Ag 5 '16

See also Electric trucks—Cost of operation; Motor trucks—Records

Engines

See Automobile engines

Fuel

See Automobile engines—Fuel

Gearing

Differential increases difficulties for dump trucks. L. G. Bartlett. Automobile 34:771 Ap 27 '16

Facts about no-differential trucks. A. M. Laycock. Automobile 34:727-8 Ap 20 '16

Manufacture of motor truck worm drives. F. L. Prentiss. *il* Iron Age 97:1380-1 Je 8 '16

Millington converter makes 2-ton G. M. C. into a four-wheel-drive truck. diags Automobile 35:895 N 23 '16

New four-wheel drive design. diag Sci Am 114:534 My 20 '16

Summing up the truck final drive situation. A. L. Clayden. diags Automobile 34:963-71 Je 1 '16

3-ton four-wheel-drive. *il* Horseless Age 37:79 Ja 15 '16

Load

Load scale for trucks. diag Munic Eng 51:204 N '16

Proposed motor-truck loads for highway bridges. O. W. Childs. Eng N 76:898-9 N 9 '16

Motor trucks—Continued**Load capacities**

Classified table of truck load capacities. Horseless Age 38:319 N 15 '16
 Estimating truck capacities. *il* Horseless Age 37:315 Ap 15 '16

Loading

See Loading and unloading

Management

Keep the wheels turning to make motor trucks profitable for contractors. *il* Eng Rec 72:721-2 D 11 '15
 Leasing contractor's trucks at end of construction season for coal handling. *il* Eng & Contr 46:128 N 15 '16
 Making motor truck pay on short hauls. *il* Eng Rec 72:731-3 D 11 '15

Manufacture

Making motor trucks in the White plant, Cleveland, F. L. Prentiss. *il* Iron Age 98:344-9 Ag 17 '16

Performance

Four-wheel drive truck hauls crushed stone over track. *il* Munic J 41:113 Jl 27 '16
 Hauling broken stone for road construction, Rockford, Ill. *il* Eng & Contr 46:3 Jl 5 '16
 Motor truck carries 13-ton loads of steel up steep mountain. *il* Eng Rec 73:493-4 Ap 8 '16
 Motor truck used to dig and backfill trench for 14,000-foot high pressure main to U. S. radio station. D. J. Young. *il* Am Gas Light J 105:129-30 Ag 28 '16; Same. Gas Age 38:189-90 Ag 15 '16
 Motor trucks and street grades. Munic J 40:796-7 Je 8 '16
 Motor trucks descend into deep building excavation. *il* Eng Rec 74:267 Ag 26 '16
 Motor trucks for earth excavation for the public service terminal, Newark, N. J. *il* Eng & Contr 46:6 Jl 5 '16
 Motor trucks growing in favor among jobbers of plumbing and heating supplies. *il* Dom Eng 76:429-31 S 23 '16
 Overhead line maintenance trucks of the Third Avenue system. J. D. Kent. *il* diags Elec Ry J 48:90-6 Jl 15 '16
 Records of motor truck performance. R. C. Hargreaves. Am Soc M E J 38:153 F '16
 Truck with steel tires solves difficult haulage problem. *il* Eng Rec 74:622 N 15 '16

Price lists

Leading 1916 gasoline trucks with classification of truck capacities. Horseless Age 37:298-314 Ap 15 '16
 Prices of 1916 gasoline motor trucks. Automobile 34:76-9 Ja 13 '16
 Prices of 1917 gasoline motor trucks. Automobile 35:754-7 N 2 '16
 Ready reference table of commercial vehicles for 1916. C. E. Palmer. Sci Am 114:36 Ja 1 '16

Records

Getting at your trucking costs. F. E. Gooding. Factory 16:464-5 My '16

Regulation

How shall motor trucks be regulated to conserve highways? Eng Rec 74:519 O 28 '16
 Motor-truck legislation advocated in Michigan. Eng Rec 74:595-6 N 11 '16
 New York hearing before a special commission. Eng N 76:1007 N 23 '16; Eng Rec 74:663-4 N 25 '16
 Pavement destruction by heavy trailers: laws to regulate vehicles. E. W. Stern. *il* Munic J 41:535-7 N 2 '16; Same. Eng Rec 74:495-6 O 21 '16; Same cond. Eng & Contr 46:392-3 N 1 '16; Excerpt. Eng N 76:938-9 N 16 '16
 Regulation of motor truck traffic. Good Roads N 8:124-5 N 1 '16
 Regulation of weight, size and speed of vehicles has become an all-important problem. H. C. Hutchins. *il* Eng Rec 73:790-2 Je 17 '16
 Rules proposed to control motor trucks in Jersey. Eng Rec 74:536 O 28 '16; Same. Munic J 41:537-8 N 2 '16; Abstract. Eng N 76:1064-5 N 20 '16

Specifications

Foreign motor truck subsidy requirements. *il* diags Sci Am 114:306+ Mr 18 '16
 Gasoline trucks of 1917. Horseless Age 38:342-8 N 15 '16
 Leading 1916 gasoline trucks with classification of truck capacities. Horseless Age 37:298-314 Ap 15 '16
 Technical specifications of gasoline commercial vehicles for 1916. Automobile 34:64-75 Ja 13 '16
 Technical specifications of gasoline commercial vehicles for 1917. Automobile 35:758-69 N 2 '16
See also Motor trucks, Military—Specifications

Springs

Results from a special spring suspension developed for brewery trucks and applicable to automobiles. M. C. Krapup. *il* diags Automobile 34:493-7 Mr 16 '16; Abstract. Am Soc M E J 38:429 My '16

Standards

S. A. E. truck division recommends standard gearshift positions and lever. Automobile 35:257+ Ag 17 '16

Starting devices

Electric starting and lighting for trucks. Sci Am 113:544-5 D 18 '15
 Motor truck queries. Sci Am 114:107 Ja 22 '16

Subsidies

See Motor truck subsidies

Testing

Testing unsteerable truck. *il* Sci Am 115:462 N 18 '16

Tires

See Tires (automobile)

Traffic

Automobile and the city plan. N. P. Lewis. Eng Rec 73:773-4 Je 10 '16; Same cond. Eng N 75:1162-3 Je 22 '16
 Motor trucks on Massachusetts highways. Eng & Contr 46:381 N 1 '16
See also Motor trucks—Regulation

Wheels

Combined tractive and directive member. *il* diags Sci Am 115:178 Ag 19 '16
 Extension wheel rim invention. *il* Munic Eng 51:161 O '16
 Search for the army truck wheel. M. C. Krapup. *il* diags Automobile 34:1122-4; 35:24-6, 60-1, 112-14 Je 22, Jl 6-20 '16
See also Tires (automobile)

Motor trucks, Military

America's first motor truck battery. J. Brinker. *il* Sci Am 114:275 Mr 11 '16
 Auto repair trucks for field service. V. W. Page. *il* Sci Am 115:242-3 S 9 '16
 Automobiles in the great war. W. F. Bradley. Sci Am S 82:66-7, 86-7 Jl 29-Ag 5 '16
 Early armored car raids audacious. G. Pollock. Automobile 35:576-7 O 5 '16
 Fiat armored trucks in battle service. *il* Automobile 35:814 N 9 '16
 Mack 2-ton armored truck for N. G. N. Y. *il* diags Automobile 34:638-9 Ap 6 '16
 Military truck a complicated problem. A. L. Clayden. Automobile 35:750-1+ N 2 '16
 Motor truck operation and accounting. C. A. Dickens. Munic Eng 51:sup23+ Jl '16
 Motor trucks in service of U. S. army (except Philippine Islands) June 30, 1915; tabulation. C. A. Dickens. Munic Eng 51:sup44 Ag '16
 Preparedness and motor trucks. D. M. Lay. *il* Automobile 34:1020-2, 1080-1, 1130 Je 8-22 '16
 Search for the army truck wheel. M. C. Krapup. *il* diags Automobile 34:1122-4; 35:24-6, 60-1, 112-14 Je 22, Jl 6-20 '16
 U. S. army has much to learn about motor truck preparedness. Automobile 34:956-7 My 25 '16
See also Motor truck subsidies; Motor trucks in military service

Motor trucks, Military—Continued**Specifications**

- Engineers to specify ideal truck. A. L. Clayden. Automobile 35:572-5 O 5 '16
 Truck standards; S. A. E. report. Automobile 35:679+ O 19 '16

Motor trucks, Municipal

- Motor truck operation and accounting. C. A. Dickens. il diags Munic Eng 50:sup23+ My '16

See also Electric trucks, Municipal; Street cleaning apparatus, Motor; Tractors, Municipal

Motor trucks and roads

- Influence of permanent roads on motor truck haulage. S. M. Williams. Munic Eng 50:101-2 Mr '16
 Motor trucks ruin improved granite-block pavement. il Eng N 76:691-2 O 12 '16
 Relation of trucks to permanent highways. W. R. Smith. Good Roads n s 11:28 Ja s '16

Motor trucks in coal industry

- Analysis of the motor-truck question. il Coal Age 10:122-1 S 9 '16

Motor trucks in construction work

- Cleveland's new bridge—the rôle of the motor truck in its construction. il Sci Am 115:480 N 25 '16
 Conveying concrete by motor truck. H. E. Kitchener. il Eng & Contr 46:82 Jl 26 '16
 Equipping motor trucks for central station service. il Elec W 68:903-6 N 4 '16
 Motor truck operation and accounting. C. A. Dickens. il Munic Eng 51:sup23+, sup23+ Ag, O '16
 Motor trucks aid business efficiency. il Bldg Age 38:49-51 D '16 (to be cont)
 Motor trucks distribute materials within the job. il plan Eng Rec 74:347-9 S 16 '16
 Motor trucks equipped for construction service. il Elec W 68:666-9 S 30 '16
 Motor trucks in state road work; resurfacing heavy traffic road with two-inch asphalt blocks. il Munic J 41:149-51 Ag 10 '16
 Motor trucks used in the construction of the new Cleveland high level bridge. il Good Roads n s 12:166 O 7 '16
 Truck tractor for highway construction. il Sci Am 115:374 O 21 '16
 Under what conditions are motor trucks a good investment. Concrete 9:56-8 Ag '16

Motor trucks in freight handling

- Advantages of motor trucks for use on steamship piers. R. O. Patten. Int Marine Eng 21:447 O '16
 Auto-truck line competes with two railroads. Eng Rec 74:100 Jl 22 '16
 Cooperation between motor trucks and steamship lines in handling freight. H. L. Whittemore. Int Marine Eng 21:61-2 F '16
 Economies by the use of motor trucks in industrial establishments. W. P. Kennedy. Eng M 52:54-62 O '16
 Economy in the use of motor trucks. Ry Age 60:1340 Je 16 '16
 Economy of larger trucking units. W. F. Hebard. Ry Age 60:360 F 25 '16
 Motor trucks as the solution of the marine freight terminal problem. M. C. Horine. il Int Marine Eng 21:20-2 Ja '16
 Motor trucks at steamship terminals. H. C. Hutchins and H. W. Perry. il Int Marine Eng 21:441-6 O '16
 Necessity for improved systems at railway terminals. A. J. Marshall. Ry R 58:483-5 Ap 1 '16

See also Electric trucks in factories, freight terminals, etc.; Motor trucks on rails

Motor trucks in military service

- Civilian motor trucks as army supply trains. J. Brinker. il Sci Am 114:423+ Ap 22 '16
 Motor branch of the army in Mexico. il Horseless Age 38:350-1 N 15 '16
 Motor trucks and the army. il Sci Am S 82:340 N 25 '16
 Motor trucks expedite the U. S. army's pursuit of bandits into Mexican deserts. il Automobile 34:636-7 Ap 6 '16
 Moving a regiment by motor. V. W. Page. il Sci Am 114:644 Je 17 '16

Substituting gasoline for horseflesh; work of motor trucks with the army in Mexico. V. W. Page. il Sci Am 115:118-19 Ag 5 '16

See also Motor trucks, Military

Motor trucks in ore haulage

- United States motor trucks for Bolivian tin mines. Eng & Min J 100:978 D 11 '15

Motor trucks on rails

- Opinion on automobilizing steam railways; correspondence. Eng & Contr 46:149-50 Ag 16 '16
 Salvaging rails with motor trucks. il Eng & Contr 46:342 O 18 '16; Same. Eng Rec 74:511 O 21 '16; Same cond. Iron Age 98:758 O 5 '16; Same cond. Elec Ry J 48:1070 N 18 '16
 Special rims for adapting motor truck to railroad track. il Eng & Contr 46:351 O 18 '16
 Why not automobilize our railways? il Eng & Contr 46:50 Jl 19 '16

Motor vehicles

- Comparison of weight in its relation to horsepower in motor vehicles. Sci Am S 82:199 S 23 '16

See also Ambulances; Automobiles; Electric trucks; Electric vehicles; Fire apparatus, Motor; jitney buses; Motor barges; Motor boats; Motor buses; Motor cars (railroad); Motor ships; Motor trucks; Tractors

Motors

See also Aeroplane motors; Automobile engines; Automobiles; Dynamos; Electric motors; Engines; Gas and oil engines; Locomotives; Machinery; Steam engines; Turbines; Water wheels; Wind motors

Motors, Aeroplane. See Aeroplane motors**Moulding. See Foundry practice****Mounds**

- Nacoochee mound investigated. Sci Am S 82:343 N 25 '16
 Uncovering a prehistoric dwelling in southeastern Colorado. il Sci Am 115:156 Ag 12 '16

Mt. Holyoke college

- Skinner recitation building. il plans Brickb 25:39, pl 1-4 F '16

Mount Morgan mine

- Petrography of the Mount Morgan mine, Queensland. W. E. Gaby. il map Am Inst Min E Bul 117:1725-44 S '16

Mount Rainier national park

- Description. M. Daniels. il Am For 22:529-36 S '16

Mount Royal tunnel. See Montreal—Railroads**Mount Vernon, New York****Architecture**

- Houses in Mount Vernon, N. Y. il plans Arch & Bldg 48:pl 3a-3d Ja '16

Mountain guns

- Mountain gun and mule team. il Sci Am S 81:372 Je 10 '16

Mountain laurel

- Laurel root as a substitute for French briar. Sci Am 115:290 S 23 '16

Mountain railroads

- Cable inclines on the Sao Paulo Ry. in Brazil. F. A. Molitor. il diag map Eng N 76:976-7 N 23 '16
 Cableway and railway for the ascent of Mont Blanc. il diags map Eng N 74:1216-17 D 23 '15
 Conquering the Alps by cable railway. Ry Age 61:364-6 S 1 '16
 Furka Pass railway. Engineer 121:334-5 Ap 21 '16
 Hamilton electric incline railway. il Elec R & W Elec N 67:1160-2 D 25 '15; Same cond. Elec Ry J 46:115-16 Jl 17 '15; Same cond. Eng N 74:49-51 Jl 8 '15; Same cond. Ry R 57:213-14 Ag 14 '15
 Leuk-Leukerbad railway; a scenic line in the Bernese Alps. il Sci Am S 80:408 D 25 '15

See also Cable railroads

Mountain roads

- Bituminous macadam road at Bear mountain in Palisades interstate park. B. H. Allbee. il Good Roads n s 11:233-4 Je 3 '16
 Building the Storm King road. il Eng N 76:596-7 S 28 '16

Mountain roads—Continued

- Building the world's highest highway. N. L. Drew. *il Sci Am* 114:375 Ap 8 '16
 Converting a municipal liability into an asset; road up Twin Peaks, San Francisco. M. Woolley. *il Sci Am* 115:275 S 23 '16
 How they made a pike of Pike's Peak. *il Horseless Age* 37:180-1 Mr 1 '16
 Open scenic highway over Continental divide in southwestern Colorado. *il Eng Rec* 74:378-80 S 23 '16
 Pike's Peak highway, Colorado. R. C. Hardman. *il Eng N* 74:1201-3 D 23 '15

Mouse. See Mice

Mouth pen. See Pens

Movable dams. See Dams, Movable

Moving of bridges. See Bridge moving

Moving of structures

- Brick refuse burner moved on barge without jacking. *il Eng Rec* 74:89 JI 15 '16
 Canvas over timber frame converts ferry apron into pontoon. *il Eng Rec* 73:399 Mr 18 '16
 Method and cost of moving a ferry transfer bridge. *diag Eng & Contr* 45:261 Mr 15 '16
 Moving a 1,100-ton brick railway station, Danville, Va. *Sci Am* 115:209 S 2 '16
 Moving big ore unloaders by water. *il diags plan Iron Tr R* 53:647-8 Mr 23 '16
 38-ft. cobblestone arch raised and moved at Los Angeles, Cal. *il Eng N* 74:1175-9 D 16 '15
 Voyaging lighthouse. *il Sci Am* 115:17 JI 1 '16
See also Bridge moving; House moving

Moving picture acting

- Phonograph as a coach for motion picture actors. *il Sci Am* 115:367 O 21 '16

Moving picture theaters

- Automatic control system that precludes fire and panic in picture theatres. *il Sci Am* 115:104 JI 29 '16
 Heavy concrete beams used in rebuilding a theater. L. F. Smith. *il plan Eng N* 75:834-5 My 4 '16
 Moving picture theater, Utica, N. Y.; views and plans. *Brickb* 25:pl 108 JI '16

Heating and ventilation

- Heating a Hoboken moving picture theater. *il plan Metal Work* 85:512-13 Ap 14 '16
 Low pressure steam heating system in a photo play house. G. W. Loeber. *plans Dom Eng* 77:2-5 O 7 '16
 Motion picture houses in New York city inadequately ventilated. *Heat & Ven* 13:41-2 My '16

Lighting

- Analysis of moving picture theater lighting. L. W. McOmber. *il Elec W* 68:122-5, 174-6 JI 15-22 '16

Moving pictures

- Animated cartoons in the making. *il Sci Am* 115:354 O 14 '16
 Artisans of the motion picture films. *il Sci Am* 115:210-11+ S 2 '16
 Bringing motion pictures into the home. *il Sci Am* 115:434+ N 11 '16
 Cinematograph screen that does not need darkness. *il diags Sci Am* 114:347 Ap 1 '16
 Electric lighting of a movie studio. W. E. Brewster. *il diag Elec W* 68:1051-3 N 25 '16
 Exhibiting motion pictures in mining towns. E. A. Dench. *Coal Age* 9:764-5 Ap 29 '16
 Fact versus fiction in motion pictures. *Sci Am* 115:168 Ag 19 '16
 Horting automatic-stop, motor-driven picture-film rewriter. *il Elec R & W Elec'n* 69:385 Ag 26 '16; *Elec W* 68:338 Ag 12 '16
 Making a motion picture of a one hundredth second shutter exposure. *il Sci Am* 114:589 Je 3 '16
 Motion pictures and the Chinese theater-goers. *Sci Am* 115:337+ O 7 '16
 Motor-driven motion-picture machines. *Elec R & W Elec'n* 67:1151 D 25 '15
 Movie engineering—the selection of the most efficient screen surface. L. W. McOmber. *Elec W* 67:1177 My 20 '16
 Optic projection as a problem in illumination; moving pictures. J. A. Orange. *diags Illum Eng Soc* 11:778-87, 787-93 no 8 '16

Rotating converting apparatus for motion-picture arcs. *il Elec W* 67:726-7 Mr 25 '16

See also Kinetophone; Moving picture theaters

Patents

Animated drawings in the moving pictures. *Sci Am* 114:57 Ja 8 '16

Moving pictures, Submarine

Motion picture drama from the ocean bottom. L. Brent. *il Sci Am* 115:78-9 JI 22 '16

Moving pictures in education

Motion pictures in the schools. O. R. Geyer. *Sci Am* 115:193 Ag 26 '16

Moving pictures in industry

Gas industry in the movies. E. A. Dench. *Am Gas Light J* 104:17 Ja 10 '16

General Electric lecture service. J. Liston. *il Gen Elec R* 19:236-40 Mr '16

Increasing sales by motion pictures. T. Gruen. *il Elec W* 67:1111 My 13 '16

Industrial application of motion pictures. E. A. Dench. *il Mach* 23:133-8 O '16

Moving pictures in the study of concrete. N. C. Johnson. *il Eng Rec* 72:684-7, 717-20, 755-8 D 4-18 '15

Selling machinery by motion pictures. J. M. Torr. *il Eng M* 50:509-20 Ja '16

Moving pictures in safety work

House that Jack built; a "Safety first" film. *il Ry R* 58:162-3 Ja 29 '16

Safety first in motion pictures. *il Ry Age* 60:98 Ja 21 '16

Moving pictures in science

Frog as an entertainer in motion pictures. *il Sci Am* 114:171 My 6 '16

Mozambique**Industries and resources**

Dredging in Mozambique. L. C. de la Marliere. *il Eng & Min J* 101:673-5 Ap 15 '16

Multiplication

Methods of checking multiplication. *Mach* 22:700 Ap '16

Municipal accounting

Accountancy, economy and efficiency in a city department. H. D. Force. *J Account* 21:41-9 Ja '16

Accounting system for a small city. W. Mendenhall. *J Account* 20:421-3 D '15

Importance of cost data on day labor work. A. E. Foreman. *Munic J* 41:183-8 Ag 17 '16

Logic of municipal fund accounts. B. F. Butterfield. *J Account* 22:379-84 N '16

Municipal cost data, methods of recording and value. K. M. Mitchell. *Eng & Contr* 45:212-13 Mr 1 '16

Public-works accounting for villages and towns. C. A. Holden. *Eng N* 75:1082-3 Je 8 '16

Uniform system of accounting for cities of third class in New York. F. G. Reusswig. *J Account* 22:161-76 S '16

Municipal art

Art commissions and the future of American cities. A. W. Crawford. *il plans Am Inst Arch J* 3:528-34 D '15

Street embellishments. A. A. Stoughton. *il plan Am Inst Arch J* 4:19-23 Ja '16

See also City planning; Municipal buildings; Municipal centers

Municipal asphalt plants. See Asphalt plants, Municipal**Municipal bonds**

How to conduct a bond campaign. R. E. McDonnell. *Eng & Contr* 46:394 N 1 '16

Safety of municipal bonds as an investment. *Eng & Contr* 44:463 D 15 '15

Municipal buildings

Model engineering offices, city of Dallas, Tex. *il plan Eng N* 75:698-9 Ap 13 '16

Municipal building at Plainfield, N. J. L. F. Peck and W. L. Bottomley. *il plans Arch Rec* 40:450-4 N '16

Municipal building, Waterbury, Conn.; views. *Arch & Bldg* 48:pl 11-14 F '16

New York City hall. C. C. May. *Arch Rec* 40:399-400 O '16

New York City hall. C. C. May. *il plans Arch Rec* 39:298-319, 474-90, 513-35 Ap-Je '16

Municipal buildings—Continued

Oakland auditorium, Oakland, Cal.; views and plans. Brickb 25:273, pl 165-9 O '16

See also Fire houses; Police stations; Public buildings; Public comfort stations; Social centers

Municipal centers

San Francisco civic center. J: Reid, jr. il plan Am Inst Arch J 4:331-6 Ag '16

San Francisco's civic center. il plan Eng N 75:1222-3 Je 29 '16

Seattle and city planning. W. R. B. Willcox. il plans Am Inst Arch J 4:115-18 Mr '16

See also City planning

Municipal charters

Utility-franchise policy for a model city charter. Eng N 75:209 F 3 '16

Municipal electric plants. *See* Electric plants, Municipal**Municipal electricians, International association of.** *See* International association of municipal electricians**Municipal engineering**

Inspectors on city work should be salaried. M. Y. Crowds. Eng Rec 73:84 J1 15 '16

See also Ash collection; City planning; Pavements; Public comfort stations; Public works; Refuse and refuse disposal; Refuse collection; Sanitary engineering; Sewage disposal; Sewerage; Street cleaning; Street lighting; Streets; Water purification; Water supply; Water supply engineering

Municipal ferries. *See* Ferryboats, Municipal**Municipal finance**

Finances of commission governments. Munic J 41:128 Ag 3 '16

Financing municipal improvements. R. B. Tunstall. J Account 21:176-83 Mr '16

Lessons from Ohio cities. Eng N 76:759 O 19 '16

Taxpayer and the engineer. M. Deutsch. Eng Rec 72:798-9 D 25 '15

See also Day labor; Municipal accounting; Municipal bonds

Municipal forests. *See* Forests, Municipal**Municipal franchises.** *See* Public utilities—Franchises; Street railroads—Franchises**Municipal government**

Administration of European cities. J. Pitzman. map Assn Eng Soc J 55:231-50 D '15

Municipal commercial club. W. D. Hornaday. il Munic Eng 51:11-12 J1 '16

See also Fire departments; Government regulation of industry; Municipal centers; Municipal charters; Municipal finance; Municipal ownership; Municipal supplies; Police; Public service

City manager plan

City manager; a new opportunity for engineers. G. C. Cummin. W Soc E J 21:565-70; Discussion. 570-87 S '16

City-manager government at Phoenix undergoes test. Eng N 75:1019-21 Je 1 '16

City-manager plan adopted by 75 municipalities. table Eng N 75:41 Ja 6 '16

City manager; with discussion. R. L. Fitzgerald. W Soc E J 21:418-25 My '16

City manager's experience with the government of Abilene. Eng N 75:379 F 24 '16

Commission-manager government and its relation to utilities. H. M. Waite. Elec Ry J 47:452-3 Mr 4 '16

Increasing water works efficiency under city manager government. Eng & Contr 45:446-7 My 17 '16

List of cities having commission-manager form of government. Eng & Contr 44:463 D 15 '15

New model charter. Munic J 40:46-7 Ja 13 '16

New profession. O. E. Carr. Eng N 75:627 Mr 30 '16

Selling good city government the city manager's job. Eng N 76:1045-6 N 30 '16

Commission plan

Finances of commission governments. Munic J 41:128 Ag 3 '16

Municipal improvement

Municipal and sanitary engineering service. G. R. Bascom. Eng & Contr 45:556-7 Je 21 '16

Municipal commercial club. W. D. Hornaday. il Munic Eng 51:11-12 J1 '16

Municipal improvements for 1916; tabulation. Munic Eng 50:146-60 Ap '16

Standard units for paving and sewerage. A. P. Folwell. il Munic J 40:791-3 Je 8 '16; Same abr. Eng & Contr 45:518-20 Je 7 '16

See also Billposting; Building laws; City planning; Fire protection; Harbors; Housing problem; Lighting; Municipal art; Municipal centers; Municipal government; Noise; Parks; Pavements; Public comfort stations; Public health; Refuse and refuse disposal; Refuse collection; Sanitary engineering; Smoke prevention; Street cleaning; Street lighting; Streets; Trees

Municipal improvements, American society of. *See* American society of municipal improvements**Municipal irrigation.** *See* Irrigation, Municipal**Municipal laboratories**

New York's testing laboratory. il Sci Am 113:541+ D 18 '15

Municipal law

See also Building laws; Municipal charters; Plumbing laws and regulations; Public health laws; Sewerage—Laws; Street openings; Waterworks—Laws

Municipal markets. *See* Markets, Municipal**Municipal ownership**

Method of determining a reasonable service rate for municipally-owned public utilities. J. B. Lippincott. Elec Ry J 48:1010-11 N 11 '16

Municipal ownership of central stations. T. R. Hay. Elec R & W Elec'n 68:1117 Je 17 '16

Municipally-operated electrical utilities of western Canada. A. G. Christie. Am Inst E E Pro 35:289-343 F '16; Abstract. Power 43:373-81 Mr 14 '16

Poor service causes municipal ownership. G. Marston. Elec R & W Elec'n 69:806-7 N 4 '16

Publicity campaign of Ohio service company contrasts electric rates under municipal and private operation. Elec W 67:104 Ja 8 '16

See also Asphalt plants, Municipal; Electric plants, Municipal; Government ownership; Government regulation of industry; Hydroelectric plants, Municipal; Markets, Municipal; Public utilities—Regulation

Municipal piers. *See* Piers, Municipal**Municipal plants.** *See* Asphalt plants, Municipal; Electric plants, Municipal; Hydroelectric plants, Municipal; Steam plants, Municipal**Municipal railroads.** *See* Railroads, Municipal**Municipal records**

City engineer's office records. J: McNeal. Munic J 40:397-8 Mr 23 '16

City improvement records on 4x6-inch cards. M. H. Brightman. Eng Rec 73:488-9 Ap 8 '16; Same cond. Eng N 75:470 Mr 9 '16

Filing correspondence in a municipal department. R. J. Fee. Eng N 75:786-8 Ap 27 '16

Loose-leaf filing system for city surveys. J. M. Owens. diags Eng N 76:346-8 Ag 24 '16

Loose-leaf records in Portland. Munic J 40:102-3 Ja 27 '16

Recording street data. Munic J 39:917 D 16 '15

Suggestions on filing systems for municipal engineering records. A. Lenderink. Eng & Contr 45:96 Ja 26 '16

Washington systematizes subsurface mapping. A. E. Phillips. map Eng Rec 74:262-3 Ag 26 '16

See also Pavements—Records

Municipal research

Milwaukee bureau of municipal research. Munic J 39:916 D 16 '15

Municipal supplies

Application of chemistry by the municipality. H. W. Mahr. Sci Am S 81:198 Mr 25 '16

Estimated fuel consumption of New York city in 1916. Coal Age 8:877 N 27 '15

Municipal supply department. H. M. Foster. Munic Eng 50:51-3, 131-2; 51:9-10, 42-4, 137-8 F, Ap, Jl—Ag, O '16

New York's testing laboratory. il Sci Am 113:541+ D 18 '15

Municipal supplies—Continued

Practical pointers on buying for a city. F. S. Smith. Eng & Contr 45:117-20 F 2 '16; Excerpts. Eng Rec 72:700-1 D 4 '15

See also Fire apparatus; Street cleaning apparatus

Municipal tractors. See Tractors, Municipal

Municipal tree planting. See Tree planting, Municipal

Municipalities, League of American. See League of American municipalities

Munition factories

Munitions production and the fire risk. W. D. Milne. Am Ind 17:24-5 S '16

National projectile factory. il (supp) diag plans Engineer 122:47-9, 67-9 J1 21-23 '16; Same cond. Iron Age 98:300-1, 352-4 Ag 10-17 '16

Remington small arms factory represents effective preparedness. il Iron Tr R 58:246-9 Ja 27 '16

See also Remington arms and ammunition company, Bridgeport, Connecticut

Munition workers

Conditions of health of munition workers. Illum Engr 9:215-19 J1 '16

Employment of women on munitions of war. il Engineer 121:123 F 11 '16

Engineering colleges and the war; munitions workers training of. R. M. Walmsley and C. E. Larard. Engineer 120:595-6; Discussion. 595-7 D 24 '15

Training of munition workers. Engineer 121:467 Je 2 '16

Women on munitions work. Eng M 51:118 Ap '16

Women's war work at Krupp's. Engineer 122:15 J1 7 '16

Munitions of war

After the war; what of the new munitions plants, the machine tool export trade and wages?; symposium. Iron Age 97:87-90 Ja 6 '16

All munitions work by the government. Iron Age 98:1182-3 N 23 '16

Aluminum in war munitions. Metal Ind n s 14:7 Ja '16

American chemist and the war's problems. J. R. Withrow. J Ind & Eng Chem 8:453-6 My '16

Arms and the man. Sci Am 114:376 Ap 8 '16

British industrial organisation for war. Engineer 122:191-2 S 1 '16

British industry better equipped. il Automobile 34:529-33 Mr 23 '16

Chemistry and the national welfare. W. Crozier. J Ind & Eng Chem 8:871-3 O '16

Dye industry as a factor of national security. Sci Am 114:574 Je 3 '16

Electrochemical war supplies; report of the papers presented at the meeting of the New York section of the American electrochemical society. Met & Chem Eng 14:259-65 Mr 1 '16

Engineering industries in 1915. Engineer 121:72-4 Ja 7 '16

Government equipment of munitions plants. Iron Age 97:907-8 Ap 13 '16

Government plan to equip private plants. Iron Age 97:213 Ja 20 '16

Government plants for making war materials. Eng N 75:666-7 Ap 6 '16

Heavy munitions exports. Iron Age 97:669 Mr 16 '16

Hydrogen for military purposes. E. D. Ardery. Sci Am S 82:266-7 O 21 '16; Same cond. Met & Chem Eng 14:333-4 Mr 15 '16; Same cond. Am Gas Light J 101:299-301 My S '16

Industrial preparedness; discussion by Am. Soc. M. E. Am Soc M E J 38:435-55 Je '16; Same cond. Iron Tr R 58:880-7 Ap 20 '16; Same cond. Iron Age 97:1000-3 Ap 27 '16

Industrial preparedness for war. Sci Am 114:320 Mr 25 '16

Industrial preparedness; plan to have manufacturers make some munitions in peace times. Iron Age 97:794 Mr 30 '16

Lessons from war business; filling the valleys in your production curve. il Factory 16:329-32 Ap '16

Lessons of Europe's scramble for munitions. S. H. Bunnell. Iron Age 97:64-5 Ja 6 '16

Ministry of munitions. Engineer 120:615 D 31 '15

Mobilization of material and industrial resources. A. L. Humphrey. il diag Eng Soc W Pa 32:381-432 Je '16; Same cond. Iron Age 98:234-8 Ag 3 '16; Same cond. Ry R 58:882-5 Je 17 '16

Mobilizing our industrial resources. S. Miller. Iron Tr R 58:815-16 Ap 13 '16; Same cond. Iron Age 97:718-19 Mr 23 '16

Munitions equipment and the government. Iron Age 97:1508-9 Je 22 '16

Munitions making for small manufacturers. G. Harrison. il Eng M 50:521-31 Ja '16

Munitions profits; rejections of defective materials prove costly. Sci Am S 81:99 F 12 '16

Naval consulting board's committee on industrial preparedness. Sci Am 114:348, 381 Ap 1-8 '16

Niagara the commercial research laboratory of the nation. A. H. Hooker. Met & Chem Eng 14:261-2 Mr 1 '16

Our industry and preparedness. H. E. Coffin. il Horseless Age 38:145-7 S 1 '16

Private works and the army appropriation. Iron Age 98:354-5 Ag 17 '16

Provisions of the new tax on munitions. Iron Age 98:32-3 J1 6 '16

Senate's broad army bill; enlarged opportunity given War department to contract for arms and ammunition. Metal Work 86:201 Ag 11 '16

Tax on munitions and their materials. Iron Age 98:404-5 Ag 24 '16

Teaching the manufacture of United States munitions; abstract. H. E. Coffin. Am Soc M E J 38:936 N '16

12-in. howitzer in national defense. C. A. Tupper. diag Iron Age 97:838-40 Ap 6 '16

War work; results in American shops. C. A. Tupper. Iron Age 97:75-8 Ja 6 '16

Westinghouse air brake co.'s preparedness day at Wilmerding. Ry Age 60:1222-4 Je 9 '16

Westinghouse air brake co.'s railroad preparedness day. Ry R 58:834-6 Je 10 '16

What constitutes real preparedness. C. H. Henderson. Ry R 58:836-7 Je 10 '16

See also Armor plate; Automobiles in war; Bayonets; Cars, Armored; Cartridge cases; European war—Economic aspects; European war—Military equipment; Munition factories; Munition workers; Shells; Shrapnel shells; Smokeless powder

Munroe, Henry Smith, 1850-

Retirement of Prof. Henry S. Munroe. por Sch Mines Q 36:283-305 J1 '15

Muntz metal

Muntz metal; data on the heat treatment. G. C. Holder. Metal Ind n s 14:292 J1 '16

Mural painting and decoration. See Frescoes; Mosaics; Wall board

Muscatine, Iowa**Ordinances, etc.**

Plumbing ordinance of Muscatine, Iowa. Dom Eng 77:77-8 O 21 '16

Muscle Shoals, Alabama

Proposed co-operation in Muscle Shoals project unjustly criticised. H. Burgess. map Eng Rec 73:671-3 My 20 '16

Muscles

Relation of muscular activity to the mental process. G. V. Dearborn. Sci Am S 82:210-11 S 30 '16

Museums

Additions to the University museum, Philadelphia, Pa.; views and plans. Brickb 25:133, pl 65-8 My '16

Museums as aids to forestry. H. I. Smith. il Sci Am S 81:297 My 6 '16

Music, Indian. See Indians—Music**Music halls**

Building with sound-proof rooms for the study of music; Northwestern university, il Sci Am 114:454 Ap 29 '16; Same. Bldg Age 38:62-3 Ag '16

Musical instruments, Mechanical

See also Piano players

Musical pitch

Letting the eye train the voice; a new instrument that shows a singer whether he is true to pitch. L. E. Dodd. *il Sci Am* 115: 410+ N 4 '16

Mutual benefit societies. See **Benefit societies****Mutual inductance**

Comparing the mutual-inductance between two coils with the self-inductance of one of them; abstract. C. H. Lees. *Elec W* 67: 1253-4 My 27 '16

Myers, George Hewitt

House for George Hewitt Myers. H. D. Smith. *il plans Brickb* 25:190-2, pl 132 Ag '16

N

Nails

Holding power of nails. *Bldg Age* 38:58-60 D '16

Parallel packing of nails by electricity. *il Sci Am* 114:57 Ja S '16; Same cond. *J Fr Inst* 181:262 F '16

Nails, Horseshoe

Electricity in horseshoe-nail manufacture. T. R. Hay. *il Elec R & W Elec'n* 69:460-2 S 9 '16

Nameplates

Production of etched metal goods. W. Voss. *Metal Ind n s* 14:74-6 F '16

Naphthalene

Making liquid hydrocarbons from naphthalene. W. Schneider. *Sci Am S* 82:163 S 9 '16

Naphthalene for combustion engines. *diag Gas Age* 38:426-8 O 16 '16

Naphthalene motor fuel. K. Bruhn. *Am Gas Light J* 104:91-2 F 7 '16

Solubility of naphthalene in ammonia; abstract. S. Hilpert. *Met & Chem Eng* 14:709 Je 15 '16

Thermal decomposition of the aliphatic hydrocarbon derivatives of naphthalene. G. Egloff. *Met & Chem Eng* 15:125-7 Ag 1 '16

Narcotics. See **Morphine****National association of automobile accessory jobbers**

Accessory jobbers' convention. *Horseless Age* 37:57, 83+ Ja 15 '16

Autumn meeting. St. Louis, Oct. 2-6. *Horseless Age* 38:274-5+ O 15 '16

Convention, Hot Springs, Va., May 9-12. *il Horseless Age* 37:supl-3 My 15 '16

The why of the N. A. A. J. W. M. Webster and others. *Horseless Age* 38:238-40+ O 1 '16

National association of builders' exchanges

5th annual convention, Baltimore, Feb. 22-24. *Bldg Age* 38:45-50 Ap '16

National association of cotton manufacturers

Boston convention. *Textile World* 51:2051, 2063+ Ap 29 '16

101st meeting, New London, Conn. *Textile World* 51:4093+ S 23 '16

National association of hosiery and underwear manufacturers

12th annual convention, Philadelphia, May 16-18. *Textile World* 51:2431+ My 20 '16

National association of manufacturers

Sketches and portraits of some new N. A. M. directors. *Am Ind* 16:43-5 Je '16

National association of master plumbers

Constitution and by-laws to be revised. *Dom Eng* 77:114-15 O 28 '16; Same. *Metal Work* 86:540 O 27 '16

Policy of the plumbers' organization. J. S. Cassidy. *Metal Work* 85:442-3 Mr 31 '16

Status of the National association of master plumbers. J. S. Cassidy. *Dom Eng* 74:325-6 Mr 11 '16

34th annual convention, Atlantic City, June 20-22. *Dom Eng* 76:2-15 Jl 1 '16; *Metal Work* 85:896-905 Je 30 '16

National association of master steam and hot water fitters

28th annual convention, Atlantic City, June 22-24. *Dom Eng* 76:24-31 Jl 1 '16; *Heat & Ven* 13:39-45 Jl '16; *Metal Work* 85:915-21 Je 30 '16

National association of railway commissioners

28th annual convention, Washington, D. C. *Ry Age* 61:896-902, 994-6 N 17-24 '16; *Elec Ry J* 48:1097-1101 N 25 '16

National association of sheet metal contractors

12th annual convention, Peoria, June 20-23. *Metal Work* 85:809-12, 906-14 Je 16, 30 '16

National association of stationary engineers

34th annual convention, Minneapolis, Minn., Sept. 11-16. *Power* 44:470-1 S 26 '16

National association of woolen and worsted overseers

34th annual meeting, Boston. *Textile World* 51:5013+ N 25 '16

National boiler and radiator manufacturers' association

Closer co-operation between the manufacturers and contractors of heating apparatus. F. W. Herendeen. *Heat & Ven* 13:24-8 Ag '16; Same. *Metal Work* 86:15-17 Jl 7 '16

National commercial gas association

Annual address of the president. H. B. McLean. *Am Gas Light J* 103:369-70 D 13 '15

11th annual convention, Washington, D. C., 1915. *Am Gas Light J* 103:360-1 D 6 '15

Report of the industrial fuel committee. S. T. Wilson. *Am Gas Light J* 103:412 D 27 '15

12th annual meeting, Atlantic City, N. J. *Gas Age* 38:577-94 D 1 '16

National conference of charities and correction

Meeting at Indianapolis, May 10-17. *Munic J* 40:808-9+ Je 8 '16

National conference on city planning

8th conference, Cleveland, Ohio, June 5-7. *Am Inst Arch J* 4:203 My '16

National conference on concrete road building

Report of the committee on resolutions to the concrete road building conference. *Good Roads n s* 11:142-3 Mr 11 '16

2d conference considers 17 committee reports and recommends practice. *Concrete* 8:99-109 Mr '16

National conference on housing

5th national conference, Providence, R. I., Oct. 9-11. *Dom Eng* 77:81 O 21 '16; *Iron Age* 98:894-5 O 19 '16

National defense, Council of. See **Council of national defense****National district heating association**

8th annual convention, New York city, May 16-19. *Dom Eng* 75:266-8 My 27 '16; *Metal Work* 85:718-20 My 26 '16; *Heat & Ven* 13:27-38 Je '16

National drainage congress

6th annual meeting, Cairo, Ill., Jan. 19-21. *Eng N* 75:195 Ja 27 '16

National electric light association

Closer union of the industry through the N. E. L. A. E. W. Lloyd. *Elec W* 67:32 Ja 1 '16

Ever-expanding activities. E. W. Lloyd. *Elec W* 67:1138-9 My 20 '16

Final preparations for N. E. L. A. convention. *plan Elec R & W Elec'n* 68:888-91 My 20 '16

N. E. L. A. activities. *Elec W* 68:310-11 Ag 12 '16

New England section 8th annual convention, Pittsfield, Mass., Oct. 17-20. *Elec R & W Elec'n* 69:752-3 O 28 '16; *Elec W* 68:845-6 O 28 '16; *Power* 44:636-8 O 31 '16

1917 N. E. L. A. committees. *Elec R & W Elec'n* 69:320-1 Ag 19 '16

Presidents of the National electric light association, 1885-1916; portraits. *Elec W* 67:1400 Je 17 '16

Report of closing sessions of convention of Michigan section, June 18-22. *Elec R & W Elec'n* 69:8-9 Jl 1 '16

2d question-box convention, New England section, Mar. 7-8. *Elec R & W Elec'n* 68:503-4 Mr 18 '16

Southeastern section 4th annual convention, Tampa, Fla., Nov. 15-17. *Elec R & W Elec'n* 69:917-18 N 25 '16; *Elec W* 68:1116-17 D 2 '16

39th annual convention, Chicago, May 22-26. *Elec Ry J* 47:998-1001 My 27 '16

39th annual convention, Chicago, May 22-26. *Power* 43:320-3 Je 6 '16

39th annual convention, Chicago, May 22-26; papers and discussions. *Elec W* 67:1212-39 My 27 '16

National electric light association—Continued

39th. annual convention, Chicago, May 22-26;
with abstracts of papers and reports. Elec
R & W Elec'n 68:356-81 My 27 '16

National electrical code

Analysis of changes in 1915 electrical code.
Elec R & W Elec'n 68:335-40 F 19 '16
Code requirements of electrical apparatus.
Elec R & W Elec'n 68:667-9 Ap 15 '16

See also Electric inspection

National electrical contractors' association

Historical sketch of the association. Elec R &
W Elec'n 69:96-8 Jl 15 '16

National electrical safety code

Bureau of standards issues National electri-
cal safety code. Elec Ry J 48:1059 N 18 '16
Conference between engineers and Bureau of
standards at Atlanta, May 2-4. Elec R &
W Elec'n 68:838-40 My 13 '16
Correspondence between the U. S. Bureau of
standards and the N. E. L. A. on the safety
code. Elec W 68:637-8 S 23 '16; Same cond.
Elec R & W Elec'n 69:503 S 16 '16
Final conference, Chicago, May 29-30. Elec R
& W Elec'n 68:1010-11 Je 3 '16
Final hearing on National electrical safety
code, Chicago. Elec W 67:1287-9 Je 3 '16

National exposition of chemical industries

America's second National exposition of chemi-
cal industries. Sci Am 115:340 O 7 '16
Exhibitors at second National chemical expo-
sition. Met & Chem Eng 15:288 S 15 '16
2d exposition, Grand Central Palace, New
York, Sept. 25-30. Iron Age 98:776-7 O 5 '16;
Iron Tr R 59:701 O 5 '16; J Ind & Eng Chem
8:969-74 O '16; Met & Chem Eng 15:418-30,
437-40 O 1-15 '16; Textile World 51:4244-6 S
30 '16

National foreign trade council

3d convention, New Orleans, Jan. 27-29. Iron
Age 97:318-24 F 3 '16
3d convention, New Orleans, Jan. 27-28. Iron
Tr R 58:299-300 F 3 '16

National forests. See Forest reserves**National founders' association**

Annual report of the president. W: H. Barr.
Iron Age 98:1120-1 N 16 '16; Abstract. Iron
Tr R 59:988+ N 16 '16

20th annual convention, New York, Nov. 15-16.
Iron Tr R 59:1059-61 N 23 '16; Iron Age 98:
1172-7 N 23 '16

National gas engine association

Affiliation with S. A. E. advocated at Chicago
meeting, June 29. Automobile 35:4-5 Jl 6 '16

National good roads show

8th National good roads show, Boston, Feb.
5-9, 1917. It plans Good Roads n s 12:173-4
O 21 '16

Exhibits at 7th annual meeting, Pittsburgh,
Feb. 29-Mar. 3. Munic J 40:348 Mr 9 '16

National guard. See United States—Militia**National implement and vehicle association**

23d annual convention, Atlantic City, Oct.
7-18-20. Iron Age 98:970-1 O 26 '16

National industrial conference board

Achievements of the industrial conference
board forecasted. M. W. Alexander. Iron
Age 98:1172-3 N 23 '16

Clearing house of economic information will
study problems which confront manufac-
turers. Iron Tr R 59:1010-11 N 16 '16

Formation of a co-operative body. Elec W 68:
1024-5 N 18 '16

New national industrial organization. W. M.
Alexander. Iron Age 98:1118-20 N 16 '16

National industrial traffic league

Annual meeting, Chicago, Nov. 9-10. Ry Age
61:894-5 N 17 '16

Summer meeting, Detroit, Mich., August 10-
11. Ry Age 61:293-4 Ag 18 '16

National machine tool builders' association

15th annual convention, New York, Oct. 24-25.
Iron Age 98:1043-5 N 2 '16; Iron Tr R 59:
876 N 2 '16

National metal trades association

18th annual convention, New York, April 27-28.
Iron Age 97:1068-72 My 4 '16; Iron Tr R 58:
995-8 My 4 '16

National parks

National parks as an asset. F. K. Lane. Il Am
For 22:22-3 Ja '16

Our national parks. C. H. Claudy. Il Sci Am S
82:312-14 N 11 '16

See also Forest reserves; also Casa
Grande national park; Crater Lake national
park; Glacier national park; Mesa Verde
national park; Mount Rainier national park;
Sequoia national park; Yosemite national
park

National power show

3d National power show under the auspices of
the New England association of commercial
engineers. Textile World 51:2143+ Ap 29 '16

National research council

Engineers combine with scientists in organi-
zation of National research council. Am Inst
Min E Bul 119:sup5-7 N '16; Am Soc M E J
38:814 O '16; Elec R & W Elec'n 69:667 O 14
'16; Elec W 68:748 O 14 '16; Eng N 76:720 O
12 '16; Eng Rec 74:483-4 O 14 '16; Iron Age
98:829 O 12 '16; Met & Chem Eng 15:436-7 O
15 '16; Eng & Contr 46:376 N 1 '16

Plans for a National research council. Sci Am
115:256 S 16 '16

National road. See Cumberland road**National safety council**

Convention, Detroit, Oct. 16-20. R. D. Hall.
Coal Age 10:716-19, 749-50 O 28-N 4 '16

5th annual congress, Detroit, Oct. 17-20. Elec
Ry J 48:930-4 O 28 '16; Iron Age 98:936-41
O 26 '16; Iron Tr R 59:841-5 O 26 '16; Ry Age
61:735-40 O 27 '16; Foundry 44:477+ N '16

National safety council and its electric railway
section. H. A. Bullock. Elec Ry J 46:1257-
8 D 25 '15

Railroad service of the National safety coun-
cil. Il Ry R 59:512 O 14 '16

Safety first and the employer. W. H. Cameron.
Iron Tr R 58:338-9 F 10 '16

Steam railroad section meeting, Detroit, Oct.
18. Il Ry R 59:550-3 O 21 '16

National security league

Convention, Washington, D. C., Jan. 22, 1916.
Elec W 67:248 Ja 29 '16

Engineer reserve outlined at convention of
National security league. W: B. Parsons.
Eng Rec 73:178-9 F 5 '16

National septic process protective league

Organization, March 14, 1916. Eng N 75:578
Mr 23 '16

**National supply and machinery dealers' associa-
tion**

Meeting, New York, Oct. 24. Iron Age 98:972-3
O 26 '16

**National warm air heating and ventilating asso-
ciation**

Special meeting, Cleveland, Jan. 21, 1916. Met-
al Work 35:171-2 Ja 23 '16

Natural gas. See Gas, Natural**Natural history**

See also Chemistry; Geology; Paleontology

Natural resources

See also Coal; Conservation of resources;
Forests and forestry; Geology; Mineral
lands; Mines and mineral resources; Ore
conservation; Petroleum; Water power

Naturalists. See Scientists**Nature study**

Nature-study in agriculture. H. N. Goddard.
Sci Am S 81:22-3 Ja 8 '16

See also Animals, Habits and behavior of

Naumkeag steam cotton company

Story of the new Naumkeag, Salem, Mass.
Il Textile World 51:719+ Ja 15 '16

Nautical astronomy

New system of navigation and nautical as-
tronomy. F. E. Uttmark. Il diags Sci Am S
81:396-8 Je 17 '16

Nautical schoolships. See Schoolships**Naval architects, Institution of. See Institution
of naval architects****Naval architects, Society of. See Society of
naval architects and marine engineers**

Naval architecture

- Calculations for ship's forms; experiments to determine dimensions of propellers for best efficiencies. D. W. Taylor. *Int Marine Eng* 21:71-5 F '16
- Calculations for ships' forms; ship resistance. D. W. Taylor. *Int Marine Eng* 20:443-5 O '15; Same. *Sci Am S* 81:182-3 Mr 18 '16
- Calculations for ship's forms; theory of rolling of ships. D. W. Taylor. *Int Marine Eng* 21:246-50 My '16
- Cruiser sterns on merchant ships; abstract. *Int Marine Eng* 21:304 Je '16
- Form coefficients of vessels. A. R. Liddell. *Int Marine Eng* 21:176-7 Ap '16
- Freeboard; its preliminary determination. H. A. Everett. *Int Marine Eng* 21:194-201 Ap '16
- Inclining experiments—practical hints. L. A. Baier. *Int Marine Eng* 21:227-9 My '16
- Institution of naval architects spring meeting. April 12-13; discussion of freeboard, etc. *Engineer* 121:313-14, 342-4, 360-1 Ap 14-28 '16
- Naval architects' 23d annual meeting; abstracts of papers. *Int Marine Eng* 20:540-9 D '15
- Privately owned naval scout. *il diag Sci Am* 115:363 O 21 '16
- Speedy patrol boats for the U. S. navy. *il Sci Am* 114:122+ Ja 29 '16
- Supply ships of the navy. *il Sci Am* 114:122 Ja 29 '16
- See also Barges; Barges, Steel; Coaling vessels; Ferryboats; Flying boats; Freight ships; Hospital ships; House boats; Launching; Motor barges; Motor ships; Propellers; Ship resistance; Shipbuilding; Ships; Steamboats; Submarine boats; Tank ships; Torpedo boat destroyers; Towboats; Warships

Designs and plans

- Coastwise collier Jonancy. *il diag plans Int Marine Eng* 21:9-11 Ja '16
- Conversion of the army transport McClellan into a refrigerator ship. F. J. French. *diag Int Marine Eng* 21:189-92 Ap '16
- Geared turbine tank steamer; sister ships. Sucrosa and Cubadist, built at the Fore river yard for carrying molasses or petroleum. *il diag plans Int Marine Eng* 21:358-65 Ag '16
- Harbor survey boat General. C. B. Sears. *il diag plans Int Marine Eng* 21:289-91 Je '16
- Munson steamship Munamar. *il plans Int Marine Eng* 21:186-7 Ap '16
- Need of an efficient mother ship for the submarines of the United States navy. R. G. Skerrett. *il diag Int Marine Eng* 21:234-8 My '16
- Oil tank steamship Texas. *il plans Int Marine Eng* 21:232-3 My '16
- Twin screw tunnel stern excursion river boat. *diag Int Marine Eng* 21:334-5 Jl '16
- United States army collier built in China. *il diag Int Marine Eng* 21:184-5 Ap '16

Subdivisions

- Effects of the bulkhead committee's reports in practice. A. T. Wall. *diag Engineer* 121:425-7, 444-5 My 19-26 '16
- Strength of water-tight bulkheads. J. F. King. *Engineer* 121:356 Ap 28 '16
- Subdivision and safety of ships. *Engineer* 121:317-18 Ap 14 '16
- Subdivision of merchant vessels. A. Denny. *Engineer* 121:360-1 Ap 28 '16

Naval art and science

- Spreading a smoke curtain; an artifice of marine warfare. *Sci Am S* 80:393 D 18 '15
- See also Armor plate; European war—Naval operations; Mines, Submarine; Navigation; Navy yards and naval stations; Sea planes; Shipbuilding; Signals; Submarine boats; Submarine warfare; Torpedo tubes; United States—Navy; Warships

Naval battles

- German official story of the Skagerrak sea fight. *il Sci Am* 115:173+ Ag 19 '16
- Great North sea battle. *diag Sci Am* 114:640 Je 17 '16
- Naval battle of the Skagerrak; how the engagement is viewed in Germany. Z. S. Hollweg. *Sci Am S* 82:138-9 Ag 26 '16

Naval consulting board

- Electrical engineer in the nation's service. F. J. Sprague. *Elec W* 67:10-11 Ja 1 '16
- Engineering expression on public questions. *Eng Rec* 74:429 O 7 '16
- Meeting at Washington, Sept. 19. *Am Soc M E J* 38:815 O '16
- Meeting of the Naval consulting board, Dec. 22-23. *Met & Chem Eng* 14:12 Ja 1 '16
- Naval consulting board of the United States. L. H. Baekeland. *Met & Chem Eng* 13:943-6 D 15 '15; Same. *J Ind & Eng Chem* 8:67-70 Ja '16; Excerpts. *Elec W* 66:1363-4 D 18 '15
- Naval preparedness and the civilian engineer. F. J. Sprague. *W Soc E J* 21:182-91 F '16
- What preparedness means in the industry. F. J. Sprague. *il Elec W* 67:1036-8 My 6 '16

Industrial inventory

- America's industrial organization for national defense. T. Robins. *il Sci Am* 115:40+ Jl 8 '16
- Civil engineers selected for nation-wide inventory of industrial resources. *Eng Rec* 73:559-60 Ap 22 '16
- Council of national defense. H. E. Coffin. *Eng M* 51:789-97 S '16
- Industrial inventory by engineers will stabilize nation's business in crisis; interview with H. E. Coffin. R. K. Tomlin, jr. *Eng Rec* 74:128-30 Jl 29 '16
- Industrial preparedness. *Am Soc M E J* 38:731-3 S '16
- Industrial preparedness. H. Coffin. *Automobile* 34:972-3 Je 1 '16
- Industrial preparedness inventory; personnel of the groups of five directors for each state. *Iron Age* 97:946-7 Ap 20 '16; Same. *Iron Tr R* 58:883, 885 Ap 20 '16
- Industrial-preparedness report. *Eng & Min J* 102:352 Ag 19 '16
- Manufacturers and the industrial inventory. *Am Soc M E J* 38:642-3 Ag '16
- Meaning of preparedness. D. Burnet. *Coal Age* 9:836 My 13 '16
- Mining members of industrial preparedness committee. *Eng & Min J* 101:929-30 My 27 '16
- Naval consulting board's committee on industrial preparedness. *Sci Am* 114:348, 381 Ap 1-8 '16
- Progress in the industrial preparedness inventory. *Iron Age* 98:255 Ag 3 '16
- Realizing industrial preparedness; an inventory of our resources. W. S. Gifford. *Sci Am* 114:576+ Je 3 '16
- State directors named for industrial preparedness committee. *Elec W* 67:920 Ap 22 '16; Same. *Elec R & W Elec'n* 68:708 Ap 22 '16; Same. *Am Inst E E Pro* 35:sup110-12 My '16
- State directors of mechanical engineers named for industrial preparedness committee. *Am Soc M E J* 38:389 My '16
- Work of the committee on industrial preparedness. T. A. Edison. *Am Inst Min E Bul* 119:sup4-5 N '16
- Naval education**
- Our navy as a schoolhouse. E. K. Roden. *il Sci Am* 114:218-19 F 26 '16
- See also United States—Naval academy
- Naval engineering.** See Marine engineering
- Naval engineering experiment station.** See United States—Naval engineering experiment station
- Naval guns**
- 18-inch naval gun. *Sci Am* 115:346 O 14 '16
- Large naval and coast defense guns; their process of manufacture and inspection. G. H. Holden. *il diag Sci Am S* 81:248-9 Ap 15 '16
- Size of naval guns. R. K. Turner. *il Sci Am* 114:530+ My 20 '16
- Naval history society**
- Kaiser as a draughtsman. *il Sci Am* 114:447 Ap 29 '16
- Naval militia.** See United States—Naval militia
- Naval ordnance.** See Ordnance, Naval
- Naval reserve**
- Naval reserve force; a portion of a bill approved by Congress August 29, 1916. *Sci Am S* 82:250-1 O 14 '16; Abstract. *Sci Am* 115:316 O 14 '16
- Patrol squadron; privately owned motor boats pledged to national defense. *il Sci Am* 114:511 My 13 '16

Naval reserve—Continued

Privately owned naval scout. *il diag Sci Am* 115:363 O 21 '16

Recent cruise of patrol squadron no. 1; work of part of the Mosquito fleet. O. D. Munn. *il Sci Am* 115:302-3 S 30 '16

See also Patrol boats

Naval reviewing stands

Reviewing stand; views and plans. *Am Inst Arch J* 4:212-15 My '16

Naval stations. *See* Navy yards and naval stations

Naval stores

See also Turpentine

Naval training cruise, 1916

Lay aft all civilian volunteers. R. F. Williams. *il Sci Am* 115:278-9 S 23 '16

Life of a naval volunteer. E. B. Marshall. *Sci Am* 115:279+ S 23 '16

Navies

See also Navy yards and naval stations; Submarine boats; Warships; also subdivision Navy under names of countries, e.g. Germany—Navy, Great Britain—Navy, United States—Navy

Navigation

New system of navigation and nautical astronomy. F. E. Uttmark. *il diag Sci Am S* 81:396-8 Je 17 '16

See also Aeronautics; Ferryboats; Fires at sea; Fog signals; Harbors; Launching; Lighthouses; Motor boats; Safety at sea; Ship propulsion; Ship resistance; Shipbuilding; Shipping; Ships; Signals; Sounding; Steamboats; Steering gear; Submarine boats

Study and teaching

Our nautical schoolships. F. S. McMurray. *il Sci Am* 114:474-5 My 6 '16

Navy yards and naval stations

Construction work provided for in naval appropriation bill. *Eng N* 76:sup119 S 7 '16

Submarine navy-yard; views and plans. *Am Inst Arch J* 4:172-4 Ap '16

Training mechanical apprentices at the Norfolk navy yard. N. E. Adamson, jr. *il Eng N* 50:754-S F '16

United States naval experimental wind tunnel at Washington navy yard. W. M'Entee. *il diag Int Marine Eng* 21:64-5 F '16; Same. *Sci Am S* 81:229 Ap 8 '16; Same. *Eng N* 75:697-8 Ap 13 '16

Nebraska master plumbers' association

8th annual convention, Grand Island, Neb., Feb. 10-11. *Dom Eng* 74:237-8 F 19 '16

Needles, Knitting. *See* Knitting needles

Needles (testing)

Design needle for road material penetration tests. C. S. Reeve and F. P. Pritchard. *Eng Rec* 73:796 Je 17 '16; *Eng & Contr* 45:363 Ap 19 '16

Negotiable instruments

Proposed form of negotiable bill. *Gas Age* 38:353-4 N 15 '16

See also Acceptances; Bills and notes; Checks; Investments

Negroes

Early history of the Anglo-Egyptian Soudan. C. G. Seligman. *Sci Am S* 81:270-2 Ap 22 '16

Education

Southern servants learn to use gas economically. E. D. Brewer. *il Am Gas Light J* 104:161-2 Mr 13 '16

Neighborhood centers. *See* Social centers

Neodymium

Revision of the atomic weight of neodymium. G. P. Baxter and others. *Am Chem Soc J* 38:302-10 F '16

Neon-helium tubes. *See* Vacuum tubes

Nephelometry (photometric analysis)

Nephelometric determination of small amounts of essential oils. A. G. Woodman, R. T. Gookin and L. J. Heath. *J Ind & Eng Chem* 8:128-31 F '16

Neponset river

Cleaning up and improvement of a stream polluted by sewage and trade wastes. H. P. Eddy. *Eng & Contr* 46:140-4 Ag 9 '16

Nerves

New method of repairing injured nerves. *Sci Am S* 82:195 S 23 '16

Nests

Nesting of the birds. A. A. Allen. *il Am For* 22:354-8 Je '16

Netherlands**Floods**

Draining north Holland after January's great flood. J. Spaander. *il diag map Eng N* 76:773-7 O 26 '16

Holland in the grip of its old enemy. W. J. L. Kiehl. *il Sci Am* 114:235+ Mr 4 '16

Inundation in Holland. *il diag Engineer* 122:30 Jl 14 '16

Public works

Holland develops new types of shore protection. *diag Eng Rec* 73:118-20 Ja 22 '16

Nettle fiber

Nettle fiber. *il Textile World* 51:1303 Mr 4 '16

Utilization of nettle fiber. *Sci Am S* 82:96 Ag 5 '16

Neurokeratin

Composition of neurokeratin. B. E. Nelson. *Am Chem Soc J* 38:2558-61 N '16

Nevada

See also Comstock lode; Geology—Nevada; Mines and mineral resources—Nevada

Nevada (battleship)

United States battleship Nevada. *il plan Int Marine Eng* 21:155-9 Mr '16

New Bedford textile school

Commencement of New Bedford textile school. *Textile World* 51:2927-8 Je 24 '16

New England**Industries and resources**

New England, world's greatest department store. Automobile 34:391-404 Mr 2 '16

Relation of New England agriculture to manufacturing. K. L. Butterfield. *Textile World* 51:2095+ Ap 29 '16

New England association of commercial engineers

Boston is ready for its power show. *il Power* 43:532-3 Ap 18 '16

New England association of gas engineers

Presidential address. H. K. Morrison. *Am Gas Light J* 104:129-30 F 28 '16

New England power company

Load dispatching by New England power company. *il plan map Elec W* 68:754-7 O 14 '16

New England water-works association

35th annual convention, Portland, Maine, Sept. 13-15. *Eng N* 76:570-1 S 21 '16

35th annual meeting, Portland, Maine, Sept. 13-15; abstracts of papers and committee reports. *Eng Rec* 74:385-90, 393-4 S 23 '16

Letters concerning a union of the two water-works societies. *Eng & Contr* 46:402-4 N 8 '16

New Hampshire. *See* Roads—New Hampshire

New Haven and Hartford railroad. *See* New York, New Haven and Hartford railroad

New Jersey

See also Roads—New Jersey

Sanitary affairs

Mosquito extermination in Panama and New Jersey. H. I. Eaton. *il Boston Soc C E J* 3:259-70 Je '16

New Jersey society of sanitary engineering

Quarterly meeting, Elizabeth, N. J., Jan. 29. *Metal Work* 85:202 F 4 '16

New Orleans**Architecture**

Dome of the old St. Louis hotel. N. C. Curtis. *il diag Arch Rec* 39:355-8 Ap '16

Work of the Louisiana chapter in urging the preservation of the historic architecture of New Orleans, and in seeking to restore its influence in modern building. N. C. Curtis. *il diag Am Inst Arch J* 4:219-23 My '16

New Orleans—Continued**Harbor**

- Coming restoration of the Mississippi as an important artery of commerce. O. R. Geyer. *Il Sci Am* 114:215+ F 26 '16
Development of the port of New Orleans. F. J. Springer. *Il Sci Am* 115:111 Ag 5 '16

Public works

- Debt of New Orleans to the engineer. W. B. Thompson. *Am Soc M E J* 38:394-6 My '16
Mechanical equipment used in the port of New Orleans. W. Von Phul. *Il plan Am Soc M E J* 38:515-25; Discussion. 525-8 J1 '16

Railroads

- Large passenger station for the Texas & Pacific and the St. Louis, Iron Mountain & Southern. *Il plans Ry Age* 60:1176-9 Je 2 '16
Railroad terminal in New Orleans now open. *Il Eng Rec* 73:765 Je 10 '16

Sewerage

- Sewage pumps in New Orleans. *Il Munic J* 40:13-15 Ja 6 '16
Testing the 12-ft. Wood-Nordberg pump. W. H. P. Creighton. *Il plan Eng N* 75:70-4 Ja 13 '16
What the Wood-pump test means to New Orleans. G. G. Earl. *Eng N* 75:74-5 Ja 13 '16

New South Wales

- See also* Mines and mineral resources—New South Wales

Commerce

- N. S. W. car imports increase 138 per cent. *Automobile* 35:614-15 O 12 '16

New York (city)

- Building districts and restrictions to be based upon definite principles. *Eng Rec* 73:284-5 F 26 '16
City planning by the zoning system in the Bronx. *map Eng N* 75:700 Ap 13 '16
Grading the height, size, and use of all buildings in New York. G. B. Ford. *Am Inst Arch J* 4:204-6 My '16

Architecture

- Astor house building. *Il plan Arch & Bldg* 48:23-4 F '16
From Twenty-third street up. A. Embury. *Il map Brickb* 25:255-60, 281-6 O-N '16
See also New York (city)—City hall

Bridges

- Details of travelers and jacks used in erection of Hell Gate arch span. C. S. Whitney. *Eng & Contr* 45:35 Ja 12 '16
First all-rail through route across New York city. *Il map Eng N* 75:66-9 Ja 13 '16
Hell Gate bridge built by aid of telephones. *Il Elec R & W Elec'n* 67:1158-9 D 25 '15
Hell Gate bridge, New York. *Il diags map Engineer* 120:495-7 N 26 '15
Hell Gate bridge of the New York connecting railroad. *Arch & Bldg* 48:170-2, pl 60-1 N '16
Jacking up Riverside Drive viaduct; buckling columns give trouble. *Il diags Eng N* 76:869-73 N 9 '16
Methods and equipment used in erection of Hell Gate arch over East river, New York city. W. J. Parsons. *Il diag Eng & Contr* 45:77-80 Ja 26 '16
Pavement construction on Queensboro bridge. *Il diag Eng & Contr* 45:591-2 Je 28 '16
Queens boulevard viaduct, New York Elevated line. A. M. Wyman. *Il diags Ry R* 59:111-16 J1 22 '16
Queensboro bridge floor strengthened by adding stiffeners to buckle plates. *Il diag Eng Rec* 73:670 My 20 '16
Settled columns of big New York viaduct raised. *Il Eng Rec* 74:553 N 4 '16

Budget

- Estimated fuel consumption of New York city in 1916. *Coal Age* 8:877 N 27 '15

Central testing laboratory

- New York's testing laboratory. *Il Sci Am* 113:541+ D 18 '15

City hall

- New York city hall. C: C. May. *Arch Rec* 40:399-400 O '16
New York city hall. C: C. May. *Il plans Arch Rec* 39:298-319, 474-90, 513-35 Ap-Je '16

Clubs

- Friars club, New York. H. Fisher. *Il plans Arch Rec* 40:212-22 S '16
Yale club and other club house buildings. *Il Arch & Bldg* 47:425-38, 455 D '15

Electricity supply

- Hall of records test. A. T. Rogers. *Power* 43:597-8 Ap 25 '16
Hall of records test. A. Williams. *Power* 43:411-12 Mr 21 '16
Hall of records test. R. P. Bolton. *Power* 43:778 My 30 '16
Results from New York Hall of records test. *Power* 43:361-2 Mr 14 '16
Results of the Hall of records test; abstract. *Am Soc M E J* 38:602-3 J1 '16

Explosion, 1916

- Munitions explosion in New York harbor. *Il Sci Am* 115:150 Ag 12 '16

Harbor

- Difficult piece in subaqueous rock excavation; Coenties Reef and the Whitehall-Montague street tunnels. *Il Sci Am* 115:235+ S 9 '16
See also New York (city)—Wharves

Health department

- Morality and health statistics. H. Emerson. *J Ind & Eng Chem* 8:870-1 O '16

Hospitals

- New York orthopaedic dispensary and hospital. L. M. Franklyn. *Il plans Brickb* 25:62-4, pl 33-6 Mr '16

Lighting

- Providing adequate street illumination for unusual local conditions. *Il diag Elec W* 68:619-21 S 23 '16

Maps

- New York's military map of the year 1778. F. B. Tucker. *map Eng N* 75:1172 Je 22 '16

Ordinances, etc.

- Building districts defined for New York city. *map Eng Rec* 74:166 Ag 5 '16
Building restriction in New York. *Munic J* 41:158-9, 191-2 Ag 10-17 '16
New York city board of standards and appeals adopt rules of procedure. *Eng Rec* 74:405 S 30 '16
New York specifications for purchase of supplies; hypochlorite, wood paving block and piles. *Munic J* 41:450 O 12 '16
New York zoning regulations. G. B. Ford. *Eng N* 76:405-6 Ag 31 '16
New zoning law, New York. *Brickb* 25:304 N '16
Provisions of the revised New York building code. *Eng & Contr* 45:347-8 Ap 12 '16
Refrigeration plant regulations, New York and Detroit. *diags Power* 43:931-2 Je 27 '16
Roofing construction in New York. *Metal Work* 85:55+ Ja 7 '16

Parks

- Proposed improvement of New York's Hudson river front. *Il Sci Am* 114:467+ My 6 '16

Public works

- Municipal asphalt plant of Manhattan boro. *Il Munic Eng* 50:194-5 My '16

Railroads

- First all-rail through route across New York city. *Il map Eng N* 75:66-9 Ja 13 '16
Freight facilities in Manhattan. *Ry Age* 60:809-10 Ap 7 '16
Proposed improvement of New York's Hudson river front. *Il Sci Am* 114:467+ My 6 '16
Study in electrified freight terminals; New York Central's proposed west side improvements. *map plans Ry R* 59:142-8 J1 29 '16

New York (city)—Continued**Rainfall**

Long-time New York rainfall as basis for sewer design. O. Hufeland. tables Eng N 76:393-7, 450-4 Ag 31-S 7 '16

Rapid transit

Elevated railway of domed arch construction a strong contrast to steel structure. il diags Eng Rec 74:254-6 Ag 26 '16
Employees repudiate peace pact. Elec Ry J 48:484-9 S 16 '16
General tie-up threatened in New York. Elec Ry J 48:229-34 Ag 5 '16
Improvement of Manhattan elevated railways, New York city. diags maps Ry R 58:293-7 F 26 '16
Interborough rapid transit co. strike in New York. Elec Ry J 48:449-52 S 9 '16
New standard types of roadbed for subways, tunnels and elevated roads, New York city. R. H. M. Canfield. diags Ry R 59:157-60 JI 29 '16
New York strikes well in hand. Elec Ry J 48:546 S 23 '16
Power developments for urban transportation. C. W. Wilder. il Eng M 51:260-71 My '16
Rapid transit work in 1915. D. A. Sealey. il maps Eng N 75:842-9 My 4 '16
Return feeder system of the Interborough. I. W. Gross. Elec Ry J 47:160-1 Ja 22 '16
Strikes in Westchester county and four New York boroughs settled on compromise basis. Elec Ry J 48:275-8 Ag 12 '16
Third tracking complete on the New York Elevated. il Elec Ry J 47:128 Ja 15 '16
See also New York (city)—Subways

Sanitary affairs

Refuse incinerators for Queens borough, New York city. J. C. Woodman. il plan Eng N 76:598-600 S 28 '16
\$2,500,000 garbage plant for New York. Eng Rec 73:349-50 Mr 11 '16
See also New York (city)—Sewerage; New York (city)—Water supply

Sewerage

Pollution of New York harbor and its remedy. K. Allen. il maps Eng & Contr 45:492-4 My 31 '16

Streets

Annual report of the Bureau of highways of the borough of Manhattan, New York. E. W. Stern. Eng Rec 74:225-6 Ag 19 '16
Motor trucks ruin improved granite-block pavement. il Eng N 76:691-2 O 12 '16
Pavement destruction by heavy trailers; laws to regulate vehicles. E. W. Stern. il Munic J 41:535-7 N 2 '16; Same. Eng Rec 74:495-6 O 21 '16; Same cond. Eng & Contr 46:392-3 N 1 '16; Excerpt. Eng N 76:938-9 N 16 '16
Paving methods in Manhattan borough revised. Eng N 76:397 Ag 31 '16
Recommendations for street cleaning in New York city. R. T. Fox. Good Roads n s 12:115 S 2 '16; Abstract. Eng N 76:227 Ag 3 '16; Excerpt. Eng & Contr 46:207 S 6 '16
Street paving in 1915 in Manhattan borough, New York city. E. W. Stern. Eng & Contr 46:292-3 O 4 '16
Street work in Manhattan borough, New York city, reviewed by M. M. Marks. il Good Roads n s 12:111-12 S 2 '16
Systematic snow removal. il Munic Eng 50:47-50 F '16
Tree planting would give New York a park system. map Eng Rec 74:147-8 JI 29 '16

Subways

Design and construction of the Harlem river four-track subway tunnel. Eng & Contr 45:545-7 Je 14 '16
Difficult underpinning along William street subway. A. E. Prentiss, jr. il diags Eng N 75:681-5 Ap 13 '16
Diverse methods feature New York subway concreting. R. Ridgway. il Eng Rec 73:280-2 F 26 '16
Four street shaft plants to handle 300,000 yards of excavation in twelve months. il diags Eng Rec 73:152-3 Ja 29 '16

Harlem river four-track subway tunnel. O. Hoff. il diags map Eng Soc W Pa 31:517-37 O '15; Excerpt. Eng & Contr 45:520-2 Je 7 '16; Discussion. Eng Soc W Pa 31:571-83 O '15

How the passengers regulate the subway brakes; changes in car's weight made to control the amount of power applied to the shoes. H. T. Wade. il Sci Am 115:352-3 O 14 '16

New East river tunnel, New York city. Eng & Contr 46:72 JI 19 '16

New York subway ventilation plans investigated. Eng N 75:531-2 Mr 16 '16

New York subway's largest elevator shaft sunk under Forty-second street. diag Eng Rec 74:285-6 S 2 '16

Pneumatic concrete mixing and placing. A. E. Comstock. il Eng N 75:496-7 Mr 16 '16

Progress on New York subways. Ry R 59:423-4 S 23 '16

Progress on subway construction in New York. Ry R 58:45-6 Ja 8 '16

Subway air exceeds health board's standards. Eng Rec 73:382-3 Mr 18 '16

Subway steelwork kept 20 ft. behind heading. G. D. Fried. diags Eng N 76:949-50 N 16 '16

Waterproofing practice in the New York subways. J. Rosenzweig. il Ry R 58:363-6 Mr 11 '16

William-street section of the New York subway. il diags Engineer 122:111-13 Ag 11 '16

Water supply

Accounting system of New York department of water supply. L. E. Stander. J Account 22:31-9 Ag '16

Chlorinating the water-supply of Greater New York. T. D. L. Coffin. il diags plan Eng N 76:438-40 S 7 '16

Conditions encountered and methods employed in laying water pipes in the congested streets of New York city. M. Blatt. Eng & Contr 44:246-7 S 29 '15; Same cond. Metal Work 84:804 D 24 '15

Determination of the value of fire protection afforded by the Queens county water company. J. Goodman. map Am Water Works Assn J 3:450-61; Discussion. 461-8 Je '16

New water-meter policy for New York city. Eng N 75:657 Ap 6 '16

Rock tunnel 18 miles long for New York water-supply. map Eng N 76:1008 N 23 '16

See also Catskill aqueduct

Wharves

New Jersey freight terminal for the port of New York. il Eng N 76:90 JI 13 '16

Port improvements at New York city. Ry R 58:150-1 Ja 22 '16

Two-story shed for New York's forty-sixth street pier will be 969 feet long. C. W. Staniford. diags Eng Rec 73:708-9 My 27 '16

New York (city), College of. *See* College of the city of New York

New York (state)

See also Geology—New York; Mines and mineral resources—New York (state); Roads—New York

Officials and employees

New York engineer positions standardized. Eng N 75:654-5 Ap 6 '16

New York Central railroad

Annual report for 1915. Ry Age 60:870-1, 929-31 Ap 21 '16

Electrification of freight yards in New York. map Elec Ry J 47:815-16 Ap 29 '16

Four-tracking of the Hudson division of the New York Central R. R. il Ry R 57:747-51 D 11 '15

New York Central west side improvement in New York. R. P. Bolton. Eng Rec 73:683-4 My 20 '16

West side improvement plans of New York Central railroad in New York filed. diags map Eng Rec 73:612-14 My 6 '16

New York Connecting railroad

First all-rail through route across New York city. il map Eng N 75:66-9 Ja 13 '16

Hell Gate bridge, New York. il diags map Engineer 120:495-7 N 26 '15

New York Edison company

Educational work of New York Edison company. *il Elec W* 67:979-81 Ap 29 '16
 New York Edison rate case settled without valuation. *Elec W* 68:942-3 N 11 '16
 Thin-plate batteries for reserve service, with table showing number and size of batteries employed. P. Torchio. *il Elec W* 68:77-8 J1 8 '16

New York electric railway association

Relations of the N. Y. E. R. A. to the problems of the industry. J. J. Dempsey. *Elec Ry J* 48:15 J1 1 '16
 34th annual meeting, Niagara Falls, June 27-28. *Elec Ry J* 48:16-18 J1 1 '16
 21st quarterly meeting, Albany, Feb. 25. *Elec Ry J* 47:446-9 Mr 4 '16

New York, New Haven & Hartford railroad

Annual report for the year ending June 30, 1916. map *Ry Age* 61:731-3, 775-82 O 27 '16
 Congestion in New England. H. Elliott. *Ry Age* 60:26 Ja 7 '16
 Feeding heavy single-phase load from three-phase units. *il diag Elec W* 66:1300-2 D 11 '15
 Improvements at Pawtucket and Central Falls, R. I. *il plans Ry Age* 60:13-17 Ja 7 '16
 New Haven blockade of December 13. *Ry Age* 60:67-8 Ja 14 '16
 New Haven electrification situation discussed. *Elec Ry J* 48:967 N 4 '16
 \$1,000,000 railroad improvement at Boston, Mass. Eng & Contr 46:427 N 15 '16
 Purchased power for the New Haven. *il diags plan Elec Ry J* 46:1200-4 D 18 '15
 West Farms substation of New Haven railroad. *il diags Elec W* 66:1365-7 D 18 '15

Bibliography

Trial bibliography. Bureau of railway economics, Washington, D. C. 144p N 30 '15 (Typew)

New York state association of master plumbers

28th annual convention, Brooklyn, Mar. 13-15. Dom Eng 74:396-8 Mr 25 '16; Metal Work 85:417-18 Mr 24 '16

New York state barge canal

Electricity on the New York state barge canal. E. W. Pilgrim. *il diags map Gen Elec R* 19:24-42 Ja '16
 How the New York barge canal will be operated. W. H. Yates. *il diags plan map Eng N* 75:97-104, 158-62 Ja 20-27 '16
 New York barge canal; its relation to other waterways and outlying territory. *Sci Am S* 82:330-1 N 18 '16
 New York barge canal is in partial operation. *il map Eng Rec* 74:520-3 O 28 '16
 New York state barge canal in partial operation. *Eng N* 76:373 Ag 24 '16
 Power developments along the New York barge canal. R. E. Horton. *Eng N* 75:428-9 Mr 2 '16
 Power equipment for the barge canal system of the state of New York. C. H. MacCulloch. *il Eng & Contr* 46:241-5 S 13 '16
 Power plants and factories moved at Seneca Falls. *il diags Eng N* 76:145-9 J1 27 '16
 Rebuilding barge canal at the Irondequoit break. E. Low. *il diags Eng N* 75:646-7 Ap 6 '16
 Two breaks in barge canal quickly repaired. *Eng Rec* 74:384 S 23 '16

New York state college of forestry

Teaching scientific forestry; work done by New York state college of forestry. H. S. Baker. *il Sci Am S* 81:296-7 My 6 '16

New York steam company

Extension of central station steam service in New York. diags maps Heat & Ven 13:48-52 J1 '16

New York zoological park

One of the world's most notable institutions. R. W. Shufeldt. *il plan Sci Am S* 81:358-61 Je 3 '16

New Zealand

Tragedy of Tarawera. M. Proctor. *il Sci Am S* 80:392-3 D 18 '15

Industries and resources

Hydro-electric power in New Zealand. W. Wilson. maps Inst E E J 54:275-91 F 1 '16

Two small hydro-electric plants in New Zealand. *il maps Engineer* 122:194-5 S 1 '16

Public works

Bridge building in New Zealand. O. Johnson. *il Sci Am S* 82:152-3 S 2 '16
 Draining great swamps in New Zealand. *il map Engineer* 122:218-19 S 8 '16

Newark, New Jersey

Address upon the opening of Newark's public service terminal. T. N. McCarter. *Am Gas Light J* 104:305-9 My 15 '16
 Newark commission urges importance of city plans. *Eng Rec* 73:245-6 F 19 '16

Churches

B'Nai Beshurun temple, Newark, N. J. *il plan Brickb* 24:305-6, pl 166-7 D '15

Rapid transit

Newark \$6,000,000 terminal project an accomplished fact. *il Elec Ry J* 47:817 Ap 29 '16
 Rerouting a traffic of nine cars a minute. H. C. Donecker. *il diags map Elec Ry J* 48:172-9 J1 29 '16
 Signaling in the public service terminal. J. W. Brown. *il Elec Ry J* 47:890-4 My 13 '16

Streets

Street planning in Newark. *il diags plans Munic J* 40:297-301 Mr 2 '16

Newfoundland**Industries and resources**

Submarine mining of Wabana iron ore. C. L. Cantley. *Iron Age* 96:1285 D 2 '15

Newlands bill. See Industrial research—Newlands bill

Newlands investigation. See Railroads and state—United States

News stands

Steel newsstands for New York subway. *il diag Elec Ry J* 47:789-90 Ap 22 '16

Newspaper offices

Gazette-Telegraph building, Pittsburgh, Pa.; views and plans. *Brickb* 25:pl 147-8 S '16
 Journal-Courier building, New Haven, Conn.; views and plans. *Brickb* 25:pl 149 S '16

Newspapers

Cash-in-advance subscriptions. E. M. Smith. *Inland Ptr* 56:674-6 F '16
 Chemistry and publicity. B. C. Hesse. *J Ind & Eng Chem* 8:567 Je '16
 Friendly power of the public press. E. E. Whitehorn. *il Elec W* 67:479-80 F 26 '16
 Magical tips on the black art—the penny-puller. C. R. Collins. *Inland Ptr* 58:188-9 N '16
 Newspaper work. J. C. Morrison. See monthly numbers of the Inland printer
 Notable address on subscription-getting. G. W. Wagenseller. *Inland Ptr* 57:675-6 Ag '16
 Profitable cut features for the country printer. O. M. Van. *Inland Ptr* 58:47-8 O '16
 Review of newspapers and advertisements. J. L. Frazier. See monthly numbers of the Inland printer
 See also Advertising; Associated press; House organs; Liberty of the press; Publicity; Trade papers; War newspapers; Waste paper; also L'Indépendance belge

Niagara falls

Aerial ropeway at Niagara falls. *il diags Engineer* 122:16-17 J1 7 '16
 Aerial tramway at Niagara falls. *il Elec Ry J* 48:1022-3 N 11 '16
 Electric furnace products. F. J. Tone. *Met & Chem Eng* 14:509-11 My 1 '16; Same (Ferroalloys and Niagara water power). *Iron Age* 97:1124-5 My 4 '16
 Flight of fancy. *Sci Am* 113:552 D 25 '15
 Fuller use of Niagara water. E. Acheson. *Met & Chem Eng* 15:119-20 Ag 1 '16; Excerpt. *Eng N* 74:204-5 Ag 12 '16
 Government asked to act in Niagara power crisis. *il Elec W* 68:1088 D 2 '16
 Intermittent diversion would save waste at Niagara falls. M. Deutsch. *Eng Rec* 73:714 My 27 '16

Niagara falls—Continued

- Niagara falls and American electrochemical industries; abstracts of papers at Washington meeting of American electrochemical society. *il Elec W* 67:977-8 Ap 29 '16
- Niagara falls power and American industries; symposium of papers at Washington meeting of the American electrochemical society. *Met & Chem Eng* 14:507-15 My 1 '16
- Niagara falls power famine; meeting of the Committee on foreign affairs of House of representatives and the Niagara Falls board of trade. *Met & Chem Eng* 15:115-20 Ag 1 '16
- Niagara hydroelectric situation discussed at meeting of New York state legislative committee. *Elec W* 68:261-2 Ag 5 '16
- Niagara power crisis. *Met & Chem Eng* 15: 617-18 D 1 '16
- Niagara power famine and the electrochemical situation. *F. A. Ladbury. Elec W* 68:216-17 Jl 29 '16
- Niagara power situation becoming more acute. *Elec W* 68:1038 N 25 '16
- Niagara the commercial research laboratory of the nation. *A. H. Hooker. Met & Chem Eng* 14:261-2 Mr 1 '16
- Over the whirlpool by aerial cable. *C. W. Person. il Sci Am* 114:330+ Mr 25 '16
- Power famine at Niagara; meeting of Niagara Falls section of American electrochemical society. *Feb. 2. Met & Chem Eng* 14:239-41 Mr 1 '16
- Power from Niagara falls and from other sources. *Met & Chem Eng* 14:294 Mr 15 '16
- Power situation at Niagara falls; discussion at Niagara Falls section of the American electrochemical society. *Elec W* 67:471-2 F 26 '16
- What does one look at Niagara falls cost society? *Eng & Contr* 46:123 Ag 9 '16
- Nicaragua**
Industries and resources
Central America as an export field. *G. Harris and others. U S Bur For & Dom Com* 113: 135-61 '16
- Nichrome**
Measurements of resistivity and thermal electromotive force of samples of calcium, aluminium, magnesium, alloys of aluminium and magnesium and the thermal e. m. f. curve of nickel vs. nichrome. *E. F. Northrup. Met & Chem Eng* 15:193-7 Ag 15 '16
- New development in castings of a heat-resisting and non-corroding alloy. *il Met & Chem Eng* 15:159 Ag 1 '16
- Nickel**
Canadian nickel industry. *Eng & Min J* 102: 933-4 N 25 '16
- Copper and nickel in ammunition. *G. Lyon, jr. il Metal Ind n s* 14:1-5 Ja '16
- Detection of nickel in cobalt salts. *A. R. Middleton and H. L. Miller. Am Chem Soc J* 38: 1705-11 S '16
- Geological relations of Sudbury nickel ores. *C. W. Knight. il Eng & Min J* 102:551-5 S 23 '16
- Maximum watt-dissipation in still air from nickel wire and other data. *E. S. Northrup. diag Met & Chem Eng* 15:250-1 S 1 '16
- Nickel on the Deutschland. *Metal Ind n s* 14: 345-6 Ag '16
- Origin of Sudbury nickel-copper deposits. *C. V. Corless. Eng & Min J* 102:517-18 S 16 '16
- Origin of Sudbury nickel-copper deposits. *C. W. Knight. map Eng & Min J* 101:811-12 My 6 '16
- Process of extraction of nickel; patent by *H. L. Sulman and H. F. K. Picard. Met & Chem Eng* 15:600-1 N 15 '16
- Use of diphenyl glyoxime as an indicator in the volumetric determination of nickel by Frevet's method. *G. L. Kelley and J. B. Conant. J Ind & Eng Chem* 8:804-7 S '16
- See also Nichrome; Nickel chromium; Nickel plating; Nickel steel
- Nickel chromium**
Nickel-chromium patent situation. *Elec W* 67: 80-1 Ja 8 '16
- Nickel chromium steel**
Chromium-nickel iron and steel products. *L. Waldo. Iron Age* 98:833-9 O 12 '16
- Nickel-chromium steel; patented by *J. Churchward. Met & Chem Eng* 14:664 Je 1 '16
- Nickel picrate**
Substitute for mercury. *Metal Work* 85:635 My 12 '16
- Nickel plating**
Current efficiencies in nickel plating baths with rotating cathodes; abstract. *F. C. Mathers and E. G. Sturdevant. Met & Chem Eng* 15:477 O 15 '16
- Electro-deposition of nickel. *L. D. Hammond. Metal Ind n s* 14:430-2 O '16; Abstract. *Met & Chem Eng* 15:476-7 O 15 '16
- Magnesium sulphate; its use in nickel plating solutions. *D. W. Robinson. Metal Ind n s* 14:287-8 Jl '16
- Nickel anodes. *F. J. Liscomb. il Metal Ind n s* 14:284-6 Jl '16
- Nickel anodes and dollars. *F. W. Hobbs. Metal Ind n s* 14:65 F '16
- Nickel-plating with pure nickel. *Eng & Min J* 101:819 My 6 '16
- Rapid nickel plating. *O. P. Watts. Metal Ind n s* 14:205-6 My '16; Same. *Sci Am S* 82: 90-1 Ag 5 '16; Abstract. *J Fr Inst* 181:731 My '16
- Simple test for nickel plate. *Sci Am S* 82:119 Ag 19 '16
- Speeding up the electro-deposit; the evolution of the single nickel salts in still and mechanical plating solutions. *C. H. Proctor. Metal Ind n s* 14:73 F '16
- Nickel silver.** See German silver
- Nickel steel**
American nickel steels of low thermal expansivity; abstract. *A. W. Gray, D. H. Sweet and L. W. Schad. Elec W* 68:140 Jl 15 '16
- Chrome-nickel iron and steel products. *L. Waldo. Iron Age* 98:838 O 12 '16
- Invar and related nickel steels. *bibliog il diags U S Bur Stand Circ* 58:1-68 '16; Excerpts. *Sci Am S* 81:383-4 Je 10 '16; Summary. *Am Soc M E J* 38:827 O '16
- Manufacture and uses of alloy steels. *H. D. Hibbard. U S Bur Mines Bul* 100:36-51 '15; Same. *Ry R* 58:680-3; 59:59-60 My 13, Jl 8 '16
- Oil quenching improves solid nickel-steel forgings. *C. J. Yarnall. il Eng N* 75:896-7 My 11 '16
- Nickelous hydrate**
Active materials and electrolyte of the alkaline storage battery. *L. C. Turnock. Met & Chem Eng* 15:259-62 S 1 '16
- Nieuport, Belgium**
Drama of Flanders by *M. H. Malo. Review by G. Lenotre. Am Inst Arch J* 4:207-8 My '16
- Night work**
Night work lowers efficiency. *Automobile* 34: 653 Ap 6 '16
- What does night work cost compared with day? *Eng N* 76:323, 506, 606-7, 654, 798 Ag 17, S 14, 28-O 5, 26 '16
- What is the increased labor cost of night work. *Eng & Contr* 46:421 N 15 '16
- Nightblindness**
Nightblindness. *M. Meyerhof. Sci Am S* 82:91 Ag 5 '16
- Nineteen hundred and fifteen**
Retrospect of the year 1915. *Sci Am* 114:6-7 Ja 1 '16
- Nitrates**
Nitrates and oxygen demand. *F. W. Bruckmiller. J Ind & Eng Chem* 8:899-900 O '16
- See also Saltpeter, Chile
- Nitration**
Nitration of toluene to trinitrotoluene. *I. W. Humphrey. J Ind & Eng Chem* 8:998-9 N '16
- Nitre cake**
Utilization of nitre-cake. *J. Grossmann. Met & Chem Eng* 14:453-4 Ap 15 '16
- Nitric acid**
Action of nitric acid on aluminium. *R. Seligman and P. Williams. Sci Am S* 82:150 S 2 '16
- Boiling-point of aqueous solutions of nitric acid at different pressures. *H. J. M. Creighton and H. G. Smith. diag J Fr Inst* 180:703-9 D '15

Nitric acid—Continued

- By-product coal ammonia as a domestic nitrate source. L. A. Riley. *Met & Chem Eng* 15:112-13 Ag 1 '16
- Coke-oven ammonia for munitions. J. W. Turrentine. *J Ind & Eng Chem* 8:923-6 O '16
- Conditions affecting the establishment of the nitrate industry in the United States. L. Addicks. *J Ind & Eng Chem* 8:1048-50 N '16
- Nitrogen and nitrates from bituminous coal. C. G. Atwater. *Gas Age* 38:403-5 O 16 '16
- Ostwald process of oxidizing ammonia to nitric acid. F. C. Zeisberg. *bibliog Met & Chem Eng* 15:299-304 S 15 '16
- Oxidation of ammonia to nitric acid; patent. *diag Met & Chem Eng* 15:539 N 1 '16
- Production of nitric acid from ammonia by the Ostwald process. G. Schüpphaus. *il diags Met & Chem Eng* 14:425-6 Ap 15 '16
- Synthetic nitric acid in connection with the utilization of slags and waste gases. E. K. Scott. *Iron Age* 98:305 Ag 10 '16

See also Aqua regia

Nitrification

- Nitrogen problem in arid soils. C. B. Lipman. *Sci Am S* 81:23 Ja 8 '16

Nitriles

- Catalytic preparation of nitriles. G. D. Van Epps and E. E. Reid. *Am Chem Soc J* 38:2128-35 O '16
- Preparation of aliphatic nitriles. G. D. Van Epps and E. E. Reid. *Am Chem Soc J* 38:2120-8 O '16

Nitrites

- Presence of nitrites and ammonia in diseased plants. P. A. Bonquet. *Am Chem Soc J* 38:2572-6 N '16
- Titrametric determination of nitrites. B. S. Davisson. *diag Am Chem Soc J* 38:1683-7 S '16

Nitroamines

- Application of the nitrometer for the determination of constitution and estimation of nitrogen in a class of nitrocompounds (nitroamines). W. C. Cope and J. Barab. *Am Chem Soc J* 38:2552-8 N '16

Nitro-carbopyrrolic acid

- Constitution of the three symmetrical dinitropyrrolics. W. J. Hale and W. V. Hoyt. *Am Chem Soc J* 38:1065-71 My '16

Nitro-cotton. *See* Guncotton**Nitro-fibroin**

- Studies on nitrated proteins; the hydrolysis of nitro-fibroin with hydrochloric acid. T. B. Johnson and A. J. Hill. *Am Chem Soc J* 38:1392-8 Jl '16

Nitrogen

- Activity and availability of insoluble nitrogen in fertilizers as shown by chemical and vegetation tests. F. R. Pember and B. L. Hartwell. *il J Ind & Eng Chem* 8:246-51 Mr '16
- American conquest of the air. T. H. Norton. *il Sci Am* 114:247+ Mr 4 '16
- Amino acid nitrogen of soil. R. S. Potter and R. S. Snyder. *J Ind & Eng Chem* 7:1049-53 D '15
- Ammonium sulfate as a source of combined nitrogen. J. W. Turrentine. *J Ind & Eng Chem* 8:584-5 Jl '16
- Any legislation that strikes a blow at the value of gas plant residuals is a blow against adequate preparedness. W. H. Gartley. *Am Gas Light J* 105:187 S 18 '16
- By-product oven an adjunct to preparedness. T. C. Clarke. *Coal Age* 10:342-3 Ag 26 '16
- Coal and coke by-products as a source of fixed nitrogen. H. C. Porter. *map Met & Chem Eng* 15:470-5 O 15 '16; Same (By-products insure preparedness). *Iron Tr R* 59:725-9 O 12 '16
- Comparative study of aeration and heat distillation in the Kjeldahl method for the determination of nitrogen. K. G. Falk and K. Sugiura. *Am Chem Soc J* 38:917-21 Ap '16
- Effect of nitrogen in steel. B. Strauss. *il Iron Age* 97:432-3 F 17 '16
- Electric nitrogen fixation furnace; patent of James S. Island. *diag Met & Chem Eng* 15:48 Jl 1 '16

Federal nitrate plant. *Am Soc M E J* 38:814-15 O '16

Fixation of atmospheric nitrogen. R. G. Skerrett. *il Iron Age* 97:359-62 F 10 '16

Fixation of atmospheric nitrogen. W. S. Landis. *Met & Chem Eng* 14:260 Mr 1 '16

Fixation of atmospheric nitrogen as a factor of national defense. *Elec W* 67:329-30 F 5 '16

Fixation of atmospheric nitrogen before Congress. *Met & Chem Eng* 14:418-20 Ap 15 '16

Fixation of atmospheric nitrogen, patented by W. T. Hoofnagle. *Met & Chem Eng* 14:342-3 Mr 15 '16

Fixation of atmospheric nitrogen; patents. *diags Met & Chem Eng* 14:542-5 My 1 '16

Fixation of nitrogen. *Eng & Min J* 101:1082-3 Je 17 '16

Fixation of nitrogen and water power. *Elec W* 68:409 Ag 26 '16

German nitrates from the air. *Iron Age* 98:195 Jl 27 '16

Government nitrate plant. *Eng N* 76:155 Jl 27 '16

Hydroelectric development and food supply. H. J. Pierce. *Elec W* 67:40 Ja 1 '16

Is the recovery of the nitrogen in sewage sludge practicable?; with discussion. W. R. Copeland. *Eng N* 76:665-8 O 5 '16; Same. *Eng Rec* 74:444-6 O 7 '16; Abstract. *Munic J* 41:446-8 12 '16

Kjeldahl method for nitrogen determination. P. L. Blumenthal and G. P. Plaisance. *J Ind & Eng Chem* 7:1044-5 D '15

Kjeldahl modification for determination of nitrogen in nitro substitution compounds. W. C. Cope. *J Ind & Eng Chem* 8:592-3 Jl '16

Modification of Whipple's method for organic nitrogen in sewages. F. W. Bruckmiller and L. E. Jackson. *J Ind & Eng Chem* 8:499-500 Je '16

Nitrogen and nitrates from bituminous coal. C. G. Atwater. *Gas Age* 38:403-5 O 16 '16

Nitrogen industry. E. Berg. *Met & Chem Eng* 14:620-1 Je 1 '16

Nitrogen industry. W. S. Landis. *Met & Chem Eng* 14:513-15 My 1 '16

Nitrogen; its virtues and its vices. *Sci Am S* 82:51 Jl 22 '16

Production of ammonia from cyanamid. W. S. Landis. *Met & Chem Eng* 14:87-90 Ja 15 '16; Same. *J Ind & Eng Chem* 8:156-60 F '16

Proposed German nitrogen monopoly. *Sci Am S* 81:392 Je 17 '16

Proposed government nitrate plant. *Iron Age* 97:1156-7 My 11 '16

Refrigeration in France. L. Marchis. *Met & Chem Eng* 14:187-91 F 15 '16

Role of chemistry in the war. A. S. Cushman. *J Fr Inst* 181:163-90 F '16

Sodium sulfate as a substitute for potassium sulfate in the Gunning modifications for determining nitrogen. W. L. Latshaw. *J Ind & Eng Chem* 8:586-7 Jl '16

Sources of nitrogen compounds in the United States. C. G. Gilbert. *Am Ind* 17:21-3 Ag '16; Summary. *J Fr Inst* 182:533-4 O '16

Water power and defense. W. R. Whitney. *Am Inst E E Pro* 35:551-9 My '16

See also Alkaloids; Nitric acid; Nitrification; Nitrous acid

Nitrogen-filled lamps. *See* Electric lamps, Tungsten

Nitroglycerin

Stability of nitroglycerin tablets. W. L. Scoville. *J Ind & Eng Chem* 7:1054-5 D '15

Nitroketones

Addition of aliphatic nitro compounds to unsaturated compounds. E. P. Kohler. *Am Chem Soc J* 38:889-900 Ap '16

Nitrometer

Application of the nitrometer for the determination of constitution and estimation of nitrogen in a class of nitrocompounds (nitroamines). W. C. Cope and J. Barab. *Am Chem Soc J* 38:2552-8 N '16

Nitro-methyl-sulfobenzoic acid

4-nitro-5-methyl-2-sulfobenzoic acid and some of its derivatives. W. J. Karlsake and P. A. Bond. *Am Chem Soc J* 38:1338-49 Jl '16

Nitrophenyl ethers

Mononitro phenyl ethers. H. I. Jones and A. N. Cook. *bibliog Am Chem Soc J* 38:1534-50 Ag '16

Nitrous acid

Oxidation of hydrazine; alleged role of nitrous acid in the formation of hydronitric acid. A. W. Browne and O. R. Overman. *Am Chem Soc J* 38:285-302 F '16

Nitrous oxide

Determination of air, water vapor and nitrous oxide in mixtures of these three constituents. G. A. Burrell and G. W. Jones. *diag J Ind & Eng Chem* 8:735 Ag '16

Vapor pressures of sulfur dioxide and nitrous oxide at temperatures below their normal boiling points. G. A. Burrell and I. W. Robertson. *Am Chem Soc J* 37:2691-4 D '15

Noise

Elimination of unnecessary noises. *Textile World* 51:1883+ Ap 15 '16
Skilful use of the whistle. *Ry Age* 60:469 Mr 17 '16

See also Sound

Nomographs. See Charts (calculating)

Non-conductors. See Dielectrics

Norfolk & Western railway

Abstract of annual report for 1916. *map Ry Age* 61:583-4 O 6 '16

Coal handling on the Norfolk & Western Ry. *Coal Age* 10:498-9 S 23 '16

Electrification. *il diags map Engineer* 121:330-2 Ap 21 '16

New cut-off between Burkeville, Va. and Pamplin. *il map Ry Age* 60:847-50 Ap 14 '16

Norfolk & Western electrification. *il plan Ry Mech Eng* 90:121-4 Mr '16

Operation of Norfolk & Western's electrified line. *il diag Ry Age* 60:354-7 F 25 '16

Operation of the Norfolk & Western. *il map Ry Age* 60:739-44 Mr 31 '16

Operation on the Norfolk & Western railway. F. E. Wynne. *il map Am Inst E E Pro* 35:139-45 F '16; *Excerpts. Elec Ry J* 47:311-12 F 12 '16; *Discussion. Am Inst E E Pro* 35:703-15 My '16

Safety movement on the Norfolk & Western Ry. *il Ry R* 59:553-5 O 21 '16

Norfolk Southern railroad

Examples of federal valuation of railroads. F. L. Nicholson. *Ry R* 59:385-90 S 16 '16

Examples of federal valuations of railroads. T. W. Hulme. *Ry R* 59:272-7 Ag 26 '16

Valuation report. *Ry Age* 61:196 Ag 4 '16

Normal schools

Maryland state normal school, Towson, Md.; views and plans. *Brickb* 25:pl 1-5 Ja '16

Normal solutions. See Solutions, Normal

Northern lights. See Auroras

Northern Pacific railway

19th annual report. *map Ry Age* 60:232-3, 272-6 F 11 '16

20th annual report. *map Ry Age* 61:981-2, 1019-23 D 1 '16

Northern white cedar association

20th annual meeting, Minneapolis, Jan. 13-14. *Elec R & W Elec'n* 68:143 Ja 22 '16

Northwest electric light and power association

9th annual convention, Seattle, Wash., Sept. 6-9. *Elec R & W Elec'n* 69:497-8 S 16 '16; *Elec W* 68:559 S 16 '16

Northwestern mutual life insurance company, Milwaukee

Milwaukee revisited; Northwestern mutual life insurance company's last new building. P. B. Wight. *il plan Arch Rec* 40:128-44 Ag '16

Northwestern university**School of music**

Building with sound-proof rooms for the study of music. *il Sci Am* 114:454 Ap 29 '16; *Same. Bldg Age* 38:62-3 Ag '16

Norway**Industries and resources**

Electric furnace in Norway under war conditions. *Eng & Min J* 102:821 N 4 '16

Electrochemical possibilities of the Pacific coast states as compared with those of Sweden and Norway. J. W. Beckman. *Met & Chem Eng* 15:18-21 J1 1 '16

Gas-fired reverberatory furnace at Sulitjelma, Norway. C. Offerhaus. *il diags Eng & Min J* 100:1033-7 D 25 '15

See also Mines and mineral resources—Norway

Notching

Rod notching die. H. F. McKnight. *diag Mach* 22:985-6 J1 '16

Notching machines

Harris rifle sight leaf notching machine. *il Mach* 22:910-11 Je '16

Notching machine. *diag Mach* 22:985 J1 '16

Note books

Loose-leaf methods applied to surveyors' notes. W. D. Sell. *Eng Rec* 74:229-30 Ag 19 '16

Note taking

Economy in study; observation and the taking of notes. G. V. N. Dearborn. *Sci Am S* 81:242-3 Ap 15 '16

Notes. See Bills and notes

Nottingham, England

Sewerage

How the city of Nottingham solved its sewage disposal problem. C. M. Hitch. *Dom Eng* 72:377-8 S 25 '15; *Same. Metal Work* 84:399 S 24 '15; *Same. Eng & Contr* 44:482-3 D 22 '15

Nozzles

Fire-sprinkler nozzle. *il Coal Age* 8:1019-20 D 18 '15

Flow of air through nozzles; with discussion. T. B. Morley. *diags Engineer* 121:82-4 Ja 28 '16; *Abstract. Sci Am S* 81:197 Mr 25 '16

Jones variable exhaust nozzle. *diag Ry Mech Eng* 90:400 Ag '16

Method of operation of the Hesselmann fuel nozzle. J. F. Wentworth. *diags Power* 43:83-4 Ja 18 '16

Road tests of exhaust nozzles. E. S. Barnum. *diags Ry Mech Eng* 90:67-8 F '16

Thawing-out frozen nozzles. W. T. Dagnall. *diag Foundry* 44:136 Ap '16

See also Carbureters

Nucleosides

Researches on pyrimidines; secondary pyrimidine-nucleosides and their unique behavior on hydrolysis. T. B. Johnson and S. E. Hadley. *Am Chem Soc J* 38:1844-53 S '16

Numbering

Specialty-printing problems and how to overcome them; improving numbering-heads. C. Martin. *diags Inland Ptr* 57:332-3 Je '16

Specialty-printing problems and how to overcome them; numbering theater tickets. C. Martin. *diag Inland Ptr* 57:46-8 Ap '16

Numbers. See Numerals

Numerals

Set of proposed standard numerals for the scales of measuring instruments. A. P. Trotter. *Inst E E J* 54:273-4 F 1 '16; *Abstract. Am Soc M E J* 38:354-5 Ap '16

Standard figures for measuring instruments. A. P. Trotter. *Sci Am S* 82:53 J1 22 '16

Nurses and nursing. See First aid in illness and injury

Nutmeg, Fossil

Fossil nutmeg from the tertiary of Texas. E. W. Berry. *Sci Am S* 82:261 O 21 '16

Nutrition

Economy in food; wartime measures that are interesting Europe. A. K. Chalmers. *Sci Am S* 80:408-10 D 25 '15

Newer standpoint in the study of nutrition. P. Haas. *Sci Am S* 82:359 D 2 '16

See also Digestion; Food; Vitamines

Nuts

Nut growing, a new American industry. W. C. Deming. *il Am For* 22:99-104 F '16

Nuts (machinery). See Bolts and nuts

O

Oak

- American white oak. S: B. Detwiler. il map Am For 22:3-6 Ja '16
Commercial uses of white oak. il Am For 22: 6-11 Ja '16
New method of germinating acorns for forest planting. J: W. Harshberger. il Am For 22: 687-8 N '16
Our oaks. B. Adams. il Am For 22:90-1 F '16
Use of native woods for interior finish. C. M. Price. il Brickb 24:295-6 D '15

Oak Orchard valley

- How Wall Street tills the soil. J: R. Colter. il Sci Am S 82:120-1 Ag 19 '16

Oakland, California

Architecture

- Oakland auditorium; views and plans. Brickb 25:273, pl 165-9 O '16

Oatman, Arizona

- Oatman district. L. A. Palmer. il Eng & Min J 101:895-900 My 20 '16
Prohibition in a boom gold camp at Oatman. F. H. Probert. Eng M 50:945 Mr '16
United Eastern mine, Oatman, Ariz. J. A. Burgess. il Eng & Min J 102:232-3 Jl 29 '16

Observatories, Astronomical. See Astronomical observatories

Obsolescence. See Public utilities—Valuation

Occupational diseases. See Diseases, Industrial

Occupations, Choice of

- Choosing a trade. F. B. Jacobs. Mach 23:118-19 O '16
More light on the selection of a trade with table showing percentage of skilled workers employed in each trade and the classes of work they do. E. H. Fish. Mach 22:752-3 My '16

Occupations, Dangerous

- Dangers of rubber manufacture. Sci Am S 81:281 Ap 29 '16

See also Accidents, Industrial; Mine accidents; Railroads—Accidents; Safety devices

Ocean

See also Moving pictures, Submarine; Sea walls; Sea water; Seashore; Ships; Sounding; Tides

Ocean temperature

- Ocean temperatures in the vicinity of icebergs. C. W. Waidner, H. C. Dickinson and J. J. Crowe. Sci Am S 81:166-7 Mr 11 '16

Ocean terminals. See Ports

Ocean travel. See Safety at sea; Steamboats

Odors

- Electrical experiments with scent-holding fogs. Sci Am S 82:311 N 11 '16
Experts testify on means of eliminating odors in garbage reduction. Eng Rec 73:20-1 Ja 1 '16

See also Perfumery

Office appliances

- Mechanical appliances. S. Walton. J Account 22:394-400 N '16

Office buildings

- Astor house building, New York. il plan Arch & Bldg 48:23-4 F '16
Cobb building, Seattle, Wash. J: J. Klaber. il plans Arch Rec 39:154-60 F '16
Comparative designs of office buildings. F. Ruchti. diags W Soc E J 21:638-96 O '16
Conway building power plant, Chicago. T: Wilson. il plan Power 43:66-9, 109-13 Ja 18-25 '16

- Data on the operating cost of office buildings. G: W. Martin. Eng & Contr 45:59-60 Ja 19 '16

- Equipment of Louisville office building. il plans Metal Work 85:371-4 Mr 17 '16

- Farmers' trust company building, South Bend, Ind.; views and plans. Brickb 25:247, pl 138-9 S '16

- First National-Soo line building, Minneapolis, Minn.; views and plans. Arch & Bldg 47: 396-9 N '15

- Hampton shops building, East 50th street, New York; views and plans. Brickb 25:pl 170-1 N '16

- Keeping tabs in the Fifth avenue building.

- C: H. Bromley. Power 43:467-70 My 2 '16

- Milwaukee revisited; Northwestern mutual life insurance company's last new building.

- P: B. Wight. il plans Arch Rec 40:128-44 Ag '16

- New gas office in San Francisco. R. J. Cantrell. il plans Gas Age 38:467-70 N 1 '16

- Office building at 50 East 42nd street, New York; views and plans. Arch & Bldg 48:146-9 S '16

- Penn mutual building, Philadelphia. H. D. Eberlein. il Arch Rec 39:122-31 F '16

- Plumbing in the record and office building of the Chicago and Northwestern railway. plan Dom Eng 76:388-9 S 16 '16

- Postal life building, 43d street and Fifth avenue, New York; views and plans. Brickb 25:pl 172-4 N '16

- Record system for office-building plant. Power 43:15-17 Ja 4 '16

- Rossia insurance company's building, Hartford, Conn.; views and plan. Arch Rec 39: 168-71 F '16

- Specifications cover grade A office building. Eng Rec 73:831 Je 24 '16

- Steam-heating and electric-service curves show fallacy of isolated plant for office building. il Elec W 66:1423-4 D 25 '15

- Types of elevator lobbies in office buildings. C. F. Baker. il plans Arch Rec 38:631-40 D '15; Same cond. Eng & Contr 45:452-3 My 17 '16

- Union Central building, Cincinnati, O., power-plant tests. C. B. Garrison. il Power 43:206-8 F 15 '16

- Willys-Overland's new headquarters. il Automobile 35:660-1+ O 19 '16

See also Electric service companies—Offices; Engineering offices; Printing offices; also Equitable building, New York, Russell Sage foundation building, Woolworth building

Electric equipment

- Alternating-current service for an office building. C: Klapper. diags il Elec W 68: 659-61 S 30 '16

Heating and ventilation

- Heating a Chicago office building. S. M. Bushnell. il diag Heat & Ven 13:21-6 F '16

- Heating and ventilating conditions in a large office building. C. E. A. Winslow and G. F. Maglott. Am Soc Heat & V E 21:260-71 '15; Same. Heat & Ven 12:26-31 F '15; Discussion. Am Soc Heat & V E 21:271-3 '15

- Heating and ventilating plant in Equitable building. W. H. Driscoll. diags Dom Eng 74: 197-200, 229-30 F 12-19 '16; Abstract. Heat & Ven 13:38-9 F '16

- Heating and ventilating systems in the Northwestern mutual life insurance building, Milwaukee, Wis. il plans Dom Eng 76:320-3 S 2 '16

Lighting

- Artificial lighting of typical offices in state, war and navy department building; with discussion. W: E. Chapman. il Illum Eng Soc 10:651-8 no 8 '15

- Example of modern office lighting. il Illum Engr 8:507-9 D '15

- Fixture selection and maintenance in office building lighting. S. G. Hibben. plan Elec W 68:676-7 S 30 '16

- Indirect office lighting. il Illum Engr 8:511 D '15

- Lighting in downtown office buildings; with discussion. A. O. Dicker and J. J. Kirk. il Illum Eng Soc 10:659-69 no 8 '15

- Lighting of a large shipyard office. il Illum Engr 9:142-3 Ap '16

- Modern office lighting. L. Gaster. Illum Engr 8:452 D '15

- Semi-direct office lighting in the Edison building of Chicago; with discussion. W: A. Durgin and J. B. Jackson. il Illum Eng Soc 10: 690-715 no 8 '15

Office management

- Aid for merchant mechanics in office work. Metal Work 85:380-1, 520 Mr 17, Ap 14 '16

Office management—Continued

Cutting costs in the factory office. Factory 16:333-41, 490+, 636+ Ap-Je '16

Office methods for a small contracting business. C. M. Cobb. Eng & Contr 4:317-21 Ap '16

See also Printing offices—Management

Office supplies

Packaging papers efficiently with a cardboard and tape belt. il Sci Am 115:394 O 28 '16

Ohio electric light association

First conference of station operating men's section, Columbus, Feb. 16. Power 43:339-41 Mr 7 '16

4th convention of the new business cooperation committee, Springfield, Mar. 15. Elec R & W Elec'n 68:536-7 Mr 25 '16

22d annual convention, Cedar Point, O., July 18-21. Elec R & W Elec'n 69:189-90 Jl 29 '16; Elec W 68:214-15 Jl 29 '16

Ohio engineering society

Annual meeting, Columbus, Feb. 9-11. Eng N 75:336-7 F 17 '16

Ohio state association of master plumbers

25th annual convention, Columbus, Feb. 8-10. Metal Work 85:261-3 F 18 '16

25th annual convention, Columbus, O., Feb. 8-10. Dom Eng 74:206-9 F 12 '16

Oil. See Oils and fats; Petroleum**Oil analysis**

Errors in the determination of acid values of boiled oils and varnishes. E. E. Ware and R. E. Christman. J Ind & Eng Chem 8:996-7 N '16

Formolite reaction of Nastukoff as applied to oil residuals and natural asphalts. C. Richardson. J Ind & Eng Chem 8:319-21 Ap '16

Optical dispersion of Chinese wood oil as an index of purity. E. E. Ware. il J Ind & Eng Chem 8:126-8 F '16

Storage changes in vegetable and animal oils. H. A. Gardner. J Ind & Eng Chem 8:997-8 N '16

Oil burners

Blast furnace irregularities and their treatment. J. E. Johnson, jr. diag Met & Chem Eng 15:75-6 Jl 15 '16

Crude oil as fuel in low pressure heating systems. H. S. Haley. il diags Am Soc Heat & V E 21:410-24 '15; Same. Dom Eng 70:104-6, 139-41 Ja 23-30 '15

Experiments in natural-draft oil burning on the U. S. S. Fulton; abstract. L. R. Ford. diags Am Soc M E J 38:830-1 O '16

Fuel oil burner used on C., M. & St. P. locomotives. diag Elec Ry J 47:829 Ap 29 '16

Heating boilers for electric locomotives. diags Elec Ry J 47:1082-3 Je 10 '16

How oil burners help boilers over peak loads. il diag Elec W 68:758-9 O 14 '16

Johnson rotary oil burner. il Heat & Ven 13: 56 O '16

Kitson flame projector. il Illum Engr 9:31 Ja '16

Long fuel-oil burner. diag Power 44:406-7 S 19 '16

Oil burners for mill power plants. il Textile World 51:709, 711, 713 Ja 15 '16

Oil burners with natural draught. diags Engineer 122:286 S 29 '16

Oil burning boiler furnace. A. C. McHugh. Power 44:339 O 31 '16

Oil-burning boiler furnace. W. G. Camp. diag Power 44:464 S 26 '16

Oil-burning sand dryer. F. G. Lister. diags Elec Ry J 47:503-4 Mr 11 '16

Powell oil burner valve. diag Power 44:55 Jl 11 '16

Safety in use of oil burners. A. C. McHugh. Power 44:593-4 O 24 '16; Same. Eng & Min J 102:825-6 N 4 '16

Oil cans

Oil cans of rational design. il Ry Mech Eng 90:91 F '16

Oil distribution. See Petroleum pipe lines**Oil engines. See Gas and oil engines****Oil films**

Oil films on water and on mercury. H. Devaux. il Sci Am S 81:24-7 Ja 8 '16

Oil filters

Effective oil filter. W. S. Weeks. il Eng & Min J 102:711 O 14 '16

Homemade oil filter. C. Ryan. il Power 44: 64-5 Jl 11 '16; Same. Coal Age 10:136-7 Jl 22 '16

Richardson-Phenix cutting oil and compound filter. diags Iron Age 96:1523 D 30 '15; Mach 22:436-7 Ja '16

Testing and filtering of transformer oil. E. P. Peck. il Elec W 67:1413-14 Je 17 '16

Oil flow

Flow of oil through orifices. G. P. Anthes. Power 44:58-9 Jl 11 '16

Flow of viscous liquids through pipes. W. K. Lewis. diag J Ind & Eng Chem 8:627-32 Jl '16; Abstract. Am Soc M E J 38:668-9 Ag '16

Influence of viscosity in pumping crude oil. A. L. Collins. Eng N 76:22-4 Jl 6 '16

Time factor in the formation of aromatic hydrocarbons from a paraffin base oil. G. Egloff and T. J. Twomey. Met & Chem Eng 15:245-50 S 1 '16

Viscosity of oils in relation to the rate of flow through pipes; abstract. R. T. Glazebrook, W. F. Higgins and J. R. Pannell. Am Soc M E J 38:593 Jl '16

Oil fuel. See Petroleum as fuel**Oil gas. See Gas, Oil****Oil grooves**

Oil grooves in bearings. C. N. Scott. Textile World 51:3226-7 Jl 15 '16

Oil handling

Method of discharging oil barrel. M. R. Percy. il Eng & Min J 102:822 N 4 '16

Oil house. See Oil storage**Oil lands**

Fight for naval fuel. J. E. Jenks. Sci Am 115: 61 Jl 15 '16

Oil pipe lines. See Petroleum pipe lines**Oil purification**

Oil drying and purifying outfits. il Met & Chem Eng 13:977-8 D 15 '15

Oil rings

Truing up oil rings. C. C. Lynde. il Power 44: 318-19 Ag 29 '16

Oil separators

Care of oil separators. H. G. Gibson. il Power 44:26 Jl 4 '16

De La Vergne oil reclaimers. il Elec W 68: 729 O 7 '16

Easily constructed separator. J. L. Ball. diag Power 44:358 S 5 '16

Electrostatic separation of oil and water, patented by F. W. Peek, jr. diag Met & Chem Eng 14:343 Mr 15 '16

Engine oil collector-filter. J. A. McGilliway. il Power 43:521-2 Ap 11 '16

Filter and grease extractor. il Elec W 67:670-1 Mr 18 '16

Multiple filter and grease extractor. il Iron Age 97:425 F 17 '16; Elec W 67:670-1 Mr 18 '16; Met & Chem Eng 14:400 Ap 1 '16

Oil and a money saver. E. O. Edney. diag Power 43:300 F 29 '16

Oil and water separator. W. J. Oettinger. il Power 44:133-9 Jl 25 '16

Taking oil from feed water. R. A. Langworthy. plan Power 43:154-5 F 1 '16

Oil shales

Fuel oil from shale. A. Selwyn-Brown. Eng M 50:913-20 Mr '16

Future gasoline supply from shale. Sci Am 111:429 Ap 22 '16

Kimmeridge oil shales. Engineer 121:235 Mr 17 '16

Newfoundland oil shales. Eng & Min J 101:436 Mr 4 '16

Norfolk oil-shales. W. Forbes-Leslie. Engineer 122:347-3 O 20 '16

Oil ships. See Tank ships**Oil storage**

Building an oil-storage plant under difficulties, Providence, R. I. il plan Eng N 74:1276-7 D 30 '15

Clean, handy oil storage. H. P. Doering. il Power 43:848 Je 13 '16

Extinguishing oil tank fires with a blanket of foam. il Sci Am 115:44 Jl 8 '16

Oil storage—Continued

- Foam-system installation for fighting oil fires. C. P. Bowie. *il diags Eng N* 75:794-7 Ap 27 '16
- Garage business; storage and handling of gasoline and oil. P. M. Heldt. *il diag Horseless Age* 37:348-9, 394-6, 432-3, 474-6 My 1-Je 15 '16
- Road oil storage plant of Davidson county at Nashville, Tennessee. *il Good Roads n s* 12: 186 N 4 '16
- Steel arches are designed to eliminate rim tension in oil reservoirs. H. B. Post. *diags Eng Rec* 74:353-4 S 16 '16
- Storage of oil fuel. Power 44:74-5 J1 11 '16
- Underground oil-storage tanks with flame-proof vent. *diags Eng N* 75:663-4 Ap 6 '16
- Warring on waste; reducing losses of liquids. G. A. Townsend and F. H. LeMont. *il Factory* 17:14-16 J1 '16
- Oil switches.** See Electric switches
- Oil tanks.** See Oil storage
- Oil testing**
- Chart for flotation testing. L. B. Pringle. *Eng & Min J* 102:749-50 O 21 '16
- Data on the oxidation of automobile cylinder oils. C. E. Waters. *U S Bur Stand Tech Pa* 73:1-20 '16; Same cond. *J Ind & Eng Chem* 8:587-92 J1 '16; Abstract. *Automobile* 35:283 Ag 17 '16
- De-emulsibility testing of engine oils. F. T. Leilich. *Power* 43:294-5 F 29 '16
- Demulsibility testing of engine oils. G. O. Wilson. *Power* 43:522 Ap 11 '16
- Demulsibility testing of engine oils. S. W. Stratton. *Power* 43:485 Ap 4 '16
- Flash point of oils. *il Automobile* 34:975 Je 1 '16
- Flotation oils at Anaconda. *Eng & Min J* 101: 508 Mr 13 '16
- Fractional distillation of lubricating oils. J. G. O'Neill. *Power* 44:108-12 J1 18 '16
- Insulating oils. *diags Inst E E J* 54:497-504 Ap 1 '16
- Lubricants and lubrication. J. D. Morgan. *Power* 43:317-18 Mr 7 '16
- Lubrication engineering. J. R. Battle. *Power* 43:405-6 Mr 21 '16
- Measurement of viscosity and a new form of viscosimeter. H. C. Hayes and G. W. Lewis. *diags Am Soc M E J* 38:626-30 Ag '16; Same cond. *Iron Tr R* 59:836-7+ O 26 '16; Discussion. *Am Soc M E J* 38:630-2 Ag '16
- Navy test of lubricating oil. J. L. Kauffman. *Power* 44:466-7 S 26 '16
- Oil testing machine which gives true insulation comparison of oils. *il Elec W* 68:574-5 S 16 '16
- Oil tests; definitions. *Horseless Age* 37:441 Je 1 '16
- Portable 30,000-volt oil-testing outfit. *il Elec W* 67:280-1 Ja 29 '16
- Properties of oils and their relation to lubrication. G. B. Upton. *Sibley J* 30:277-82 Je '16
- Simple transformer-oil moisture test. *Elec Ry J* 48:1030 N 11 '16; *Elec W* 68:958 N 11 '16
- Study in gas oils. R. C. Downing and E. F. Pohlman. *diags Am Gas Light J* 105:318-19, 322-30 N 13 '16
- Testing and filtering of transformer oil. E. P. Peck. *il Elec W* 67:1413-14 Je 17 '16
- Use of oil engines for pumping. C. R. Knowles. *Am Water Works Assn J* 3:356-63 Je '16; Same. *Eng & Contr* 45:217-18 Mr 1 '16
- Value of cylinder oils. C. E. Carpenter. *Power* 43:519-20 Ap 11 '16
- Viscosity in cylinder oils. C. E. Carpenter. *Power* 44:101-3 J1 18 '16; Discussion. 44:250-1, 463-4, 598-9, 630-2, 697 Ag 15, S 26, O 24, 31, N 14 '16
- Oil transportation.** See Petroleum pipe lines; Tank cars; Tank ships
- Oil wells.** See Petroleum
- Oiled roads.** See Roads, Oiled
- Oils, Essential.** See Essential oils
- Oils and fats**
- Bleaching of fats and oils. *J Ind & Eng Chem* 8:281 Mr '16
- Conifer leaf oil industry. A. W. Schorger. *il Met & Chem Eng* 14:515-18 My 1 '16

- Deriving fat from yeast. *Sci Am* 114:101 Ja 22 '16
- Essential oil of Formosan Hinoki (chamaecyparis obtusa, S. et Z.) wood. S. Uchida. *Am Chem Soc J* 38:699-702 Mr '16
- Eucalyptus oil industry of California. P. W. Tompkins. *J Ind & Eng Chem* 7:995-7 N '15; Same. *Sci Am S* 81:288 Ap 29 '16
- Flotation experiments on a Joplin tailing; with discussion. W. A. Whitaker and others. *tables Met & Chem Eng* 15:131-7 Ag 1 '16
- Flotation oils. O. C. Raiston. *Met & Chem Eng* 14:712-14 Je 15 '16
- Highly unsaturated hydrocarbon in shark liver oil. M. Tsujimoto. *il J Ind & Eng Chem* 8:889-96 O '16
- Hunting for oil used in shoe-shining preparations. *Sci Am* 115:98 J1 29 '16
- Hydrogenated oils in the soap industry. C. Ellis. *Sci Am S* 82:59 J1 22 '16
- Oil of the wild grape seed, vitis riparia. G. D. Beal and C. K. Beebe. *J Ind & Eng Chem* 7:1054 D '15
- Oils and other reagents in flotation. R. J. Anderson. *Met & Chem Eng* 14:135-7 F 1 '16; Same. *Sci Am S* 81:379 Je 10 '16
- Oils of the coniferae; the leaf and twig, and bark oils of incense cedar. A. W. Schorger. *J Ind & Eng Chem* 8:22-4 Ja '16
- Polymerization of Chinese wood oil. C. L. Schumann. *J Ind & Eng Chem* 8:5-15 Ja '16
- Problem of catalyzer poisons with reference to the hydrogenation of fatty oils. C. Ellis and A. A. Wells. *J Ind & Eng Chem* 8:886-8 O '16
- Recovery of wool fat. E. E. Ayres, jr. *Met & Chem Eng* 14:317-18 Mr 15 '16
- Refining vegetable and animal oils. C. Baskerville. *J Fr Inst* 181:733-46 Je '16; Same. *Met & Chem Eng* 15:31-5 J1 1 '16; Same cond. *J Ind & Eng Chem* 8:118-21 F '16
- Rules for the safe handling of paints and oils. J. W. Gibbons. *diags Ry Mech Eng* 90: 147-8 Mr '16
- Sandalwood, its assay, yield of oil, and changes in the oil during distillation. C. H. Briggs. *J Ind & Eng Chem* 8:428-9 My '16
- Thermal values of the fats and oils; the heat of bromination. J. W. Marden. *diags J Ind & Eng Chem* 8:121-6 F '16
- Time factor in the formation of aromatic hydrocarbons from a paraffin base oil. G. Egloff and T. J. Twomey. *Met & Chem Eng* 15:245-50 S 1 '16
- Varnish analysis and varnish control; molecular weights of vegetable oils. M. Y. Seaton and G. B. Sawyer. *J Ind & Eng Chem* 8:490-3 Je '16
- Viscosity of a thermolized paraffin base oil. G. Egloff and R. J. Moore. *Met & Chem Eng* 15:192-3 Ag 15 '16
- See also Calamary oil; Chinese wood oil; Chrysalis oil; Cottonseed oil; Creosote; Essential oils; Linseed oil; Lubrication and lubricants; Oil analysis; Oil testing; Orange oil; Peanut oil; Petroleum; Pine oil; Sage brush oil; Wood oils
- Oklahoma.** See Roads—Oklahoma
- Oklahoma City, Oklahoma**
- Crazy city planning. *plan Eng N* 75:499 Mr 16 '16
- Old age**
- Dean of bacteriologists; contributions of Elie Metchnikoff to human welfare. *Sci Am* 115: 98 J1 29 '16
- See also Longevity
- Old age pensions.** See Civil service pensions
- Old Dominion copper mining & smelting company**
- Flow sheets. *Met & Chem Eng* 15:486-7 O 15 '16
- Old Dominion operations, Globe, Arizona. *flow sheet Eng & Min J* 102:754-5 O 21 '16
- Olean, New York**
- Public works
- How Olean, N. Y., promoted and financed a \$300,000 flood abatement project. *diag plan Eng & Contr* 46:347 O 18 '16
- Olefins**
- Effect of temperature on the formation of olefins from petroleum at atmospheric pressure. G. Egloff and T. J. Twomey. *Met & Chem Eng* 14:247-50 Mr 1 '16

Oleomargarine

Detection of natural and artificial pigments in oleomargarine and butter. L. S. Palmer and W. E. Thrun. *J Ind & Eng Chem* 8: 614-18 *Jl* '16

Omaha, Nebraska**Water supply**

Omaha coagulant plant uses improved alum process. *il Eng Rec* 74:435 *O* 7 '16

Water basin for city of Omaha constructed by day labor, using new special devices. H. V. Knouse. *il diags Eng Rec* 74:527-9 *O* 28 '16

Omnibuses, Motor. See Motor buses**Onions**

Genus allium; antiquity and utility. *Sci Am S* 81:12 *Ja* 1 '16

Ontario. See Geology—Ontario; Mines and mineral resources—Ontario; Ottawa**Open-air schools**

Open-air school in California. W: T. Johnson. *il plan Am Inst Arch J* 4:162-4 *Ap* '16

Open hearth process

Blair reversing valves; installation at open-hearth furnaces of Brier Hill steel company. *il diags Iron Age* 97:472-3 *F* 24 '16; *Iron Tr R* 58:438-9 *F* 24 '16

Checker designs for open-hearth furnaces. Sibley *J* 30:178-9 *F* '16

Deterioration of refractory materials. H. B. Cronshaw. *il Iron Age* 98:1056-9 *N* 9 '16

Evolution of American open-hearth practice. H. H. Campbell. *Iron Age* 98:448-50 *Ag* 31 '16

German steel costs in the open-hearth process. W. S. Schomburg. *Iron Age* 97:911 *Ap* 13 '16

How to utilize waste heat boilers. C. J. Bacon. *diags Iron Tr R* 57:1225-30 *D* 23 '15

Improved open-hearth checker construction. *diags Iron Age* 97:188-90 *Ja* 20 '16

Improvement in open-hearth practice. *diags Iron Age* 97:1191-2 *My* 18 '16

Jobbing foundry installs 2-ton furnace. *il diags Iron Age* 98:510-13 *S* 7 '16

Making success of duplex process. G. B. Waterhouse. *il diags plan Iron Tr R* 59:879-86 *N* 2 '16; Same; with discussion. *Iron Age* 98:999-1001+ *N* 2 '16

Minnesota steel company completes Duluth plant. *il diags Iron Age* 96:1511-15 *D* 30 '15; Same cond. *Eng & Contr* 45:155-6 *F* 16 '16

Open-hearth furnace roof. *il diags Iron Age* 96:1234-5 *D* 2 '15

Open hearth versus the electric furnace in the manufacture of commercial steels. S. Cornell. *Met & Chem Eng* 13:630-1 *S* 15 '15; Same. *Sci Am S* 81:107 *F* 12 '16

Open hearths at Youngstown iron and steel co. R. V. Sawhill. *il diag plans Iron Tr R* 58:427-34 *F* 24 '16

Powdered coal in the open-hearth furnace. C. J. Gadd. *diags Iron Age* 97:890-5 *Ap* 13 '16; Abstract. *Am Soc M E J* 38:423-4 *My* '16

Pulverized coal for open hearths. J. W. Fuller. *il diags plan Iron Tr R* 59:898-903 *N* 2 '16; Abstract, with discussion. *Iron Age* 98:1037-9 *N* 2 '16

Pulverized coal for the open hearth. J. P. Kittredge. *Iron Tr R* 59:949 *N* 9 '16

Schumann device for reversing open-hearth steel furnaces. *diag Met & Chem Eng* 14:111 *Ja* 15 '16; *Iron Age* 97:310 *F* 3 '16

Small open hearth for foundries. *il diags Iron Tr R* 58:1149-52 *My* 25 '16

Successfully-operated two-ton open-hearth. *il diags Foundry* 44:169-73 *My* '16

Utilization of waste heat for steam-generating purposes. A. D. Pratt. *diag Am Soc M E J* 38:859-61 *N* '16

See also Steel metallurgy

Opium

Comparison and identification of various types of smoking opium. F. D. Simons. *J Ind & Eng Chem* 8:345-51 *Ap* '16

Optical chemistry. See Photochemistry**Optical glass.** See Glass**Optical illusions**

Optical center. J. L. Frazier. *il Inland Ptr* 58:217-19 *N* '16

Optical instruments

Optical appliances in warfare. C. R. Darling. *J Fr Inst* 181:723-5 *My* '16

See also Lenses; Microscopes and microscopy; Periscope; Polaroscope; Reflection (light); Telescopes

Optical stress analysis. *il diags Sci Am S* 82:268-9 *O* 21 '16

Optics. See Halos (meteorology); Light; Optical instruments

Optics, Physiological. See Eye; Sight

Orange labels

Specialty-printing problems and how to overcome them. C. Martin. *Inland Ptr* 57:331-2 *Je* '16

Orange oil

Relative oil yield of Florida oranges. S. C. Hood. *J Ind & Eng Chem* 8:709-11 *Ag* '16

Oranges

Composition of frozen oranges and lemons. H. D. Young. *J Ind & Eng Chem* 7:1038-41 *D* '15

Phases of the citrus by-product industry in California. R. T. Will. flow sheets *J Ind & Eng Chem* 8:78-86 *Ja* '16

Pre-cooling California oranges to save millions of dollars annually. V: W. Killick. *il Sci Am* 115:387 *O* 28 '16

See also Orange oil

Oratory

How to become an effective public speaker. *Eng Rec*, 73:331 *Mr* 4 '16

Ordnance

See also Artillery; Guns (ordnance); Mortars

Ordnance, Naval

Metallography of steel for United States naval ordnance; requirements of the Bureau of ordnance. H. E. Cook. *il Am Inst Min E Bul* 110:375-400 *F* '16; Same. *Iron Tr R* 58:379-88 *F* 17 '16; Discussion. *Am Inst Min E Bul* 113:917-26 *My* '16

Ore bins

Door-operating mechanism for ore bins. *diag Eng & Min J* 101:521 *Mr* 18 '16

Wooden ore bin with concrete bottom. C. M. Eye. *il Eng & Min J* 100:966-7 *D* 11 '15

Ore conservation

Conservation of iron ore. C. K. Leith. *Am Inst Min E Bul* 110:227-31 *F* '16; Same abr. *Iron Tr* 59:1045-6 *N* 23 '16

Ore cooler

Hendrie & Bolthoff ore cooler. *Eng & Min J* 101:397 *F* 26 '16

Ore deposits

Copper deposits in the "Red Beds" of Texas. L: M. Richard. *Econ Geol* 10:634-50 *N* '15

Electric activity in ore deposits. R. C. Wells. *Sci Am S* 81:14-16, 31-2 *Ja* 1-8 '16

Geological relations of Sudbury nickel ores. C. W. Knight. *il Eng & Min J* 102:554-5 *S* 23 '16

Geology and ore-deposition at Tonopah, Nevada. J. E. Spurr. *il pls Econ Geol* 10:713-69 *D* '15

Geology and ore deposits of Mohave county, Arizona. F. C. Schrader. *il maps Am Inst Min E Bul* 119:1935-67 *N* '16

Gold and silver deposits in North and South America. W. Lindgren. maps *Am Inst Min E Bul* 112:721-46 *Ap* '16

Interpretation of assay curves for drill holes. E: H. Perry and A: Locke. *Am Inst Min E Bul* 110:195-201 *F* '16; Same cond. *Eng & Min J* 101:726-8 *Ap* 22 '16

Iron deposits of Daiquiri, Cuba. W. Lindgren and C. P. Ross. bibliog *il Am Inst Min E Bul* 106:2171-90 *O* '15; Discussion. 113:886-93 *My* '16

Iron ores of the Philippine Islands. W. E. Pratt. maps *Am Inst Min E Bul* 110:247-62 *F* '16

Laboratory studies in sulphide ore enrichment; formation of chalcopyrite by artificial replacement. S. W. Young and N. P. Moore. *il Econ Geol* 11:574-81 *Ag* '16

Laboratory studies on secondary sulphide ore enrichment; the copper sulphides and hydrogen sulphide. S. W. Young and N. P. Moore. *Econ Geol* 11:349-65 *Je* '16

Ore deposits—Continued

- Localization of values or occurrence of shoots in metalliferous deposits. F. F. Grout. *Econ Geol* 11:395-7 Je '16
- Metal oxide and sulphide impregnation of firebrick. N. B. Davis. pls *Econ Geol* 10:663-75 N '15
- Mineralization at Clifton-Morenci. L. E. Reber, jr. pls map *Econ Geol* 11:528-73 Ag '16
- Mining in Oriente province, Cuba. J. T. Singewald, jr. and B. L. Miller. il map *Eng & Min J* 101:587-92 Ap 1 '16
- Observations on certain types of chalcocite and their characteristic etch patterns. C. F. Tolman, jr. 10 pls *Am Inst Min E Bul* 110:401-33 F '16
- Observations on the geology of the Broken Hill lode, New South Wales. E. S. Moore. il *Econ Geol* 11:327-48 Je '16
- Ore genesis and contact metamorphism at the Long Lake zinc mine, Ontario. W. L. Uglow. il *Econ Geol* 11:231-45 Ap '16
- Origin of certain ore-deposits. W. L. Uglow. *Econ Geol* 11:87-92 Ja '16
- Origin of copper ores of the Red Beds type. A. F. Rogers. 3 pls *Econ Geol* 11:366-80 Je '16; Discussion. H. W. Turner. *Econ Geol* 11:594-7 Ag '16
- Origin of Sudbury nickel-copper deposits. C. V. Corless. *Eng & Min J* 102:517-18 S '16
- Origin of Sudbury nickel-copper deposits. C. W. Knight. map *Eng & Min J* 101:811-12 My 6 '16
- Paragenesis of certain sulphide intergrowths. W. L. Whitehead. il *Econ Geol* 11:1-13 Ja '16
- Pyritic copper deposits of Kyshtim, Russia. A. W. Stickney. bibliog pls *Econ Geol* 10:593-633 N '15
- Reactions involved in secondary copper sulphide enrichment. E. G. Zies, E. T. Allen and H. E. Merwin. diags *Econ Geol* 11:407-503 Jl '16
- Relation of ore-deposition to faulting. J. E. Spurr. *Econ Geol* 11:601-22 O '16
- Relation of ore deposits to different types of intrusive bodies in Utah. B. S. Butler. map *Econ Geol* 10:101-22 F '15; Discussion. 10:471-2; 11:284-8 Jl '15, Ap '16
- Rôle of colloidal migration in ore deposits. J. D. Clark and P. L. Menaul. *Econ Geol* 11:37-41 Ja '16
- See also* Copper ores; Geology; Iron ores; Mineral lands; Mines and mineral resources

Ore docks

- Big Duluth iron ore docks set record. il *Iron Tr R* 57:1134-6 D 9 '15
- Moving big ore unloaders by water. il diags plan *Iron Tr R* 58:647-8 Mr 23 '16
- New ore dock for the Soo at Ashland, Wis. diag *Ry Age* 61:237 Ag 11 '16
- Ore dock for the Lehigh Valley in New York harbor. diag map *Ry Age* 60:436 Mr 10 '16
- Ore pier of the Lehigh Valley R. R. at Constable Hook, Bayonne, N. J. diags plans *Ry R* 58:229-31 F 12 '16
- Reinforced-concrete ore dock at Ashland, Wis. W. E. King. diags plan *Eng N* 76:242-5 Ag 10 '16

See also Ore handling

Ore dressing. *See* Ore treatment**Ore handling**

- Automatic skip handles hot ore. H. V. Schiefer. il diags *Eng N* 76:590-2 S 28 '16
- New methods of handling coal and ore. C. D. Gilpin. *Eng N* 76:169 Jl 27 '16
- Ore unloading on the Great Lakes. J. H. Stratton. il *Sci Am S* 81:104-7 F 12 '16
- Stockpile trestle of recent design. G. S. Barber. *Iron Tr R* 58:232+ Ja 27 '16
- V-shaped ore car prevents leakage. il *Iron Tr R* 57:1081 D 2 '15

See also Ore docks

Ore pulp

- Colloids and colloidal slimes; Sedimentation and flocculation. E. E. Free. bibliog il diags *Eng & Min J* 101:249-54, 429-32, 509-13 F 5, Mr 4, 18 '16; Rate of slimes settling. *Eng & Min J* 101:681-6 Ap 15 '16

Control of ore slimes. O. C. Ralston. *Eng & Min J* 101:763-9, 890-4, 990-4 Ap 29, My 20, Je 3 '16

- Counter-migration of pulp and solution in cyanidation and acid leaching. E. Mac Donald. il *Met & Chem Eng* 14:283-4 Mr 1 '16
- Properties of slime cakes. E. E. Free. *Eng & Min J* 101:1068-70, 1105-8 Je 17-24 '16

Sampling

- Automatic pulp sampler. R. B. Elder. il diag *Eng & Min J* 101:524-6 Mr 18 '16
- Francis automatic pulp sampler. W. R. S. Francis. diags *Eng & Min J* 102:427-8 S 2 '16

Ore sampling

- Compact sample splitter. diag *Eng & Min J* 102:746 O 21 '16
- Drilling and analysis of copper ores. A. J. Sale. *Eng & Min J* 102:87-8 Jl 8 '16
- Hamilton automatic sampler. diag *Eng & Min J* 101:603 Ap 1 '16
- Mine sampling and mapping. R. J. Burgess. *Eng & Min J* 101:551-2 Mr 25 '16
- Ore-sampling conditions in the West. T. R. Woodbridge. il diags flow sheets U S Bur Mines Tech Pa 86:1-92 '16
- Samples and their interpretation. E. H. Dickenson and H. J. Volker. *Eng & Min J* 101:933-6 My 27 '16

Ore testing

See also Assaying; Ore sampling

Ore transportation

- Interstate commerce commission; iron ore rate cases. J. S. Harlan. *Ry Age* 61:427-8 S 8 '16

Ore treatment

- Ammonia solution in ore reduction. *Sci Am* 115:344 O 7 '16
- Choosing the mill site. E. S. Wiard. il *Eng & Min J* 102:1-3 Jl 1 '16
- Colloids and colloidal slimes; Sedimentation and flocculation. E. E. Free. bibliog il diags *Eng & Min J* 101:249-54, 429-32, 509-13 F 5, Mr 4, 18 '16; Rate of slimes settling. *Eng & Min J* 101:681-6 Ap 15 '16
- Concentration at Anaconda. E. P. Mathewson. il *Eng & Min J* 102:28 Jl 1 '16
- Glass surfaces for ore-dressing; abstract. W. H. Trewartha-James. *Met & Chem Eng* 14:399 Ap 1 '16
- Metallurgical treatment of molybdenum ores; abstract. H. Fleck. *Met & Chem Eng* 15:652-3 D 1 '16
- Mining and milling practice at Santa Gertrudis. H. Rose. diags plan *Am Inst Min E Bul* 116:1314-31 Ag '16; Same. *Eng & Min J* 102:247-53, 263-4 Ag 5 '16
- Nashwauk iron-washing plants. L. A. Rossman. il diag *Eng & Min J* 102:491-3 S 16 '16
- New Granby concentrator. L. L. Wittich. il flow sheet *Eng & Min J* 101:557-8 Mr 25 '16
- Recent developments in zinc concentration practice in the Joplin district, Missouri. H. C. Parmelee. *Met & Chem Eng* 15:319-21 S 15 '16
- Recent practice in concentrating Colorado tungsten ores. H. C. Parmelee. il flow sheet *Met & Chem Eng* 14:301-4 Mr 15 '16
- Relation of clay to ore-dressing and cyanidation. A. W. Allen. *Met & Chem Eng* 14:245-6 Mr 1 '16

Screening rock from iron ore. L. A. Rossman. il *Eng & Min J* 102:787 O 28 '16

Selection of a method of ore-treatment. G. J. Young. *Met & Chem Eng* 15:297-9 S 15 '16

Separation of precious metals; patent by A. H. Sherwood. *Met & Chem Eng* 15:603 N 15 '16

Zinc-lead mills of California and Nevada. L. A. Palmer. il *Met & Chem Eng* 15:203-5 Ag 15 '16

See also Classifiers; Concentrating tables; Concentrators; Copper metallurgy; Crushing; Crushing machinery; Cyanide process; Electrometallurgy; Filters and filtration (metallurgy); Flotation process; Gold metallurgy; Gold milling; Hydrometallurgy; Iron metallurgy; Lead metallurgy; Magnetic separation of ores; Metallurgy; Ore cooler; Smelting; Stamp mills; Tailings; Tin metallurgy; Tungsten; Zinc metallurgy

Ore valuation. *See* Mine valuation

Oregon. *See* Roads—Oregon

Ores

See also Assaying; Carnotite; Copper ores; Geology; Iron ores; Metallurgy; Mines and mineral resources; Ore conservation; Ore deposits; Ore sampling; Ore treatment

Organ

Pipe- and reed-organ industries. J. C. Freund. J Fr Inst 181:730 My '16

See also Musical instruments

Organ blowers

Spencer steel motor-driven organ blower. Il Elec R & W Elec'n 69:566-7 S 23 '16

Organic acids. See Acids, Organic**Organic chemistry.** See Chemistry, Organic**Organization in industry**

Chart showing the organization of the Illinois state highway department. Good Roads n s 11:76 F 5 '16

Committees manage Perfection spring co. Automobile 35:819-20 N 9 '16

Efficient enginehouse organization. E. W. Smith. Ry Mech Eng 90:143-6 Mr '16

Executive and the modern organization. D. T. Farnham. Eng M 51:485-93 Jl '16

Four examples of concreting gang organization for road work. Eng & Contr 45:177-9 F 23 '16

How a Worcester plant controls production. W. E. Freeland. Il Iron Age 98:747-53 O 5 '16

How to study factory efficiency. J. K. Mason. Eng M 51:394-400 Je '16

Industrial preparedness for peace. M. Chipman. Sci Am 114:240+ Mr 4 '16

Keeping control of factory clerical methods. K. E. Clarke. Factory 17:140-3 Ag '16

Organization and output of a gang laying concrete base for asphalt pavement. W. D. Jones. Il Eng & Contr 46:18-19 Jl 5 '16

Organization classification table. G. D. Babcock. Ind Management 52:318a D '16

Organization from the manager's standpoint. G. W. Hill. Elec R & W Elec'n 68:380 F 26 '16

Organization of a modern foundry. W. F. Rockwell. Iron Age 97:823-4 Ap 6 '16

Organization of a rifle plant. D. T. Hamilton and others. Il Mach 22:636-7 Ap '16

Organization of concreting crew; committee report. Concrete 8:106-8 Mr '16

Organization of the Baltimore water department. Eng N 76:790-1 O 26 '16

Organizing to prevent breakdowns. Factory 17:604+ N '16

Principles of industrial organization. H. N. Stronck. Met & Chem Eng 15:579-85 N 15 '16

Remington arms power plant at Bridgeport. Iron Age 97:1067 My 4 '16

Six principles of scientific salesmanship. E. St. E. Lewis. Ind Management 52:225-30, 289-98 N-D '16

See also Factory management; Office management; Railroads—Management; Scientific management

Orientype. See Typesetting machines**Orsat apparatus**

Defender portable boiler-room test outfit. Il Power 43:325 Mr 7 '16

Preventing air leakage in Orsat apparatus. Power 43:219 F 15 '16

Sampling and analyzing flue gases. H. Kreisinger and F. K. Ovitz. diags U S Bur Mines Bul 97:21-34 '15; Same abr. (Use of the Orsat). Power 43:336-9 Mr 7 '16

Oscillaria prolifica

Chemical composition of oscillaria prolifica. E. E. Turner. diags Am Chem Soc J 38: 1402-17 Jl '16

Oscillations

Mode of studying damped oscillations by the aid of shrinking vectors. D: Robertson. Inst E E J 54:24-34 D 1 '15

Oscillators

Electrical oscillations from mercury-vapor tubes. B: Liebowitz. diags Elec W 67:385-6 F 12 '16

High-frequency oscillator for porcelain-insulator testing. Il diag Elec R & W Elec'n 66: 880-1 My 8 '15; Elec W 65:1207 My 8 '15; Ry R 56:668 My 15 '15; Sci Am 114:127 Ja 29 '16

Plotron oscillator for extreme frequencies. W: C. White. Il diags Gen Elec R 19:771-5 S '16; Abstract. Elec W 68:774-5 O 14 '16

Studies in the measurement of the electrical conductivity of solutions at different frequencies; investigations on the use of the Vreeland oscillator and other sources of current for conductivity measurements. W. A. Taylor and S. F. Acree. Il Am Chem Soc J 38:2396-403 N '16

Testing of electrical porcelain. E. E. F. Creighton and P. E. Hosegood. Il diags Gen Elec R 19:479-83 Je '16

Oscillograph

Amplitude and phase of the higher harmonics in oscillograms. G. W. O. Howe. Inst E E J 54:19-24 D 1 '15

Construction of a lecture-room oscillograph. H. G. Crane and C. L. Dawes. Il diags Elec W 67:424-6 F 19 '16

Improvements in the Blondel oscillograph. diag Elec W 68:655 S 30 '16

Lecture-room oscillograph. H. G. Crane and C. L. Dawes. diags Sci Am S 81:412-13 Je 24 '16

Measurement of alternating current wave form. R. Bown. Il diags Sibley J 30:166-70 F '16

Measurement of high voltage. W: R. Work. Il diags Am Inst E E Pro 35:203-10 F '16

Oscillograph used in demonstrating long-distance telephone waves. Elec R & W Elec'n 68:191 Ja 29 '16

Osmosis

Microscopic structure of semipermeable membranes and the part played by surface forces in osmosis. F. Tinker. J Fr Inst 182:247-8 Ag '16

Osmose of some solutions of electrolytes with porcelain membranes, and the relation of osmose to membrane potential. F. E. Bartell and C. D. Hocker. diag Am Chem Soc J 38:1036-50 My '16

Osmotic pressure of sucrose solutions at 30°. J. C. W. Frazer and R. T. Myrick. diags Am Chem Soc J 38:1907-22 O '16

Relation of osmose of solutions of electrolytes to membrane potentials. F. E. Bartell and C. D. Hocker. Am Chem Soc J 38:1029-36 My '16

See also Solution (chemistry)

Ottawa, Canada

Federal plan commission presents plan for development of Canada's capital. Eng Rec 73: 583 Ap 29 '16

Plan for Ottawa, the capital of the Dominion of Canada. E. H. Bennett. Am Inst Arch J 4:263-5, pl 1-4 Je '16

Victoria memorial museum

Museum becomes the seat of government. H. I. Smith. Il Sci Am S 81:232-3 Ap 8 '16

Ovens. See Coke ovens; Stoves**Ovens, Electric.** See Electric ovens**Ovens, Gas.** See Gas ovens**Overhead expense**

Application of overhead expense. Metal Work 85:511 Ap 14 '16

Compensation insurance an item of overhead expense. G. W. Hill. Dom Eng 74:105 Ja 22 '16

Correct method of figuring overhead expense. Metal Work 84:733-4 D 10 '15

Distributing overhead expense. N: T. Ficker. Eng M 49:553-9, 690-7, 862-71; 50:58-64, 254-61, 390-400, 532-9 Jl '15-Ja '16

Figuring overhead correctly aids success. W. A. Fink. Metal Work 85:311-12 Mr 3 '16

Figuring overhead on productive labor. Metal Work 86:80 Jl 21 '16

Items to be considered in figuring overhead expense. Heat & Ven 13:45-6 S '16

Labor overhead. Metal Work 85:16, 387 Ja 7, Mr 17 '16

Method of raising overhead expenses. N. B. Armstrong. Metal Work 86:179-80 Ag 11 '16

New points in overhead expense. B. F. Henry. Metal Work 86:594-5 N 10 '16

Overhead charges in valuation work. P. J. Kealy. Elec Ry J 48:762-7 O 14 '16; Excerpt. Eng & Contr 46:432 N 15 '16

Overhead charges to be considered in making up a bid. Concrete 8:153 Ap '16

Overhead expense—Continued

- Overhead expense in combination shops. H. F. Baillet. *Metal Work* 85:5-6 Ja 7 '16
- Overhead expense items for steam fitters. *Metal Work* 86:615 N 17 '16
- Overhead expenses in California highway work. *Good Roads* n s 12:78 Ag 5 '16
- Overhead for sheet metal contractors. L. Luckhardt. *Metal Work* 86:531-2 O 27 '16
- Overhead is nix at Podunk plumbing shop. *Metal Work* 85:131-2 Ja 21 '16
- Percentage versus time method of applying overhead charges. F. O. Vance. *Metal Ind* n s 13:504-5 D '15
- Productive capacity a measure of value of an industrial property. H. L. Gantt. *Am Soc M E J* 38:876-8 N '16
- Profit eating parasite in the plumbing business. G. W. Hill. *Dom Eng* 73:298-9 D 4 '15; Same (Common fallacy). *Elec R & W Elec'n* 67:1015-16 D 4 '15
- Talk on overhead expense and peanuts. E. E. Melum. *Dom Eng* 74:9-11 Ja 1 '16

Oxalic acid

- Phenyl esters of oxalic acid. R. Adams and H. Gilman. *Am Chem Soc J* 37:2716-20 D '15

Oxalic esters

- Action of a solution of potassium hydroxide in alcohol on oxalic esters. N. C. Qua and D. McLaren. *Am Chem Soc J* 38:1803-9 S '16

Oxalyl chloride

- Action of oxalyl chloride on primary, secondary and tertiary alcohols. R. Adams and L. F. Weeks. *Am Chem Soc J* 38:2514-19 N '16

Oxidation

- Comparison of the intensity of oxidation in luminous and non-luminous insects. W. E. Burge. *J Fr Inst* 182:263-4 Ag '16
- Comparison of the permanganate methods for the determination of required oxygen. J. H. Sachs. *J Ind & Eng Chem* 8:404-6 My '16
- Data on the oxidation of automobile cylinder oils. C. E. Waters. *U S Bur Stand Tech Pa* 73:1-20 '16; Same cond. *J Ind & Eng Chem* 8:587-92 JI '16; Abstract. *Automobile* 35:233 Ag 17 '16
- Oxidation of ethyl alcohol by means of potassium permanganate. W. L. Evans and J. E. Day. *Am Chem Soc J* 38:375-81 F '16
- Oxidation of hydrazine; alleged role of nitrous acid in the formation of hydronitric acid. A. W. Browne and O. R. Overman. *Am Chem Soc J* 38:285-302 F '16
- Oxidation of manganese solutions in presence of the air. V. Lenher. *Am Chem Soc J* 38:638-40 Mr '16; Same. *Econ Geol* 11:115-17 Mr '16
- Role of atmospheric oxygen in the oxidation of glucose with potassium permanganate in the presence of varying amounts of alkali; the products of oxidation. E. J. Witzemann. *Am Chem Soc J* 38:150-61 Ja '16

Oximes

- Victor Meyer—his life and work. B. Horowitz. *J Fr Inst* 182:380-3 S '16

Oxyacetylene flame

- Autogenous welding of steel tubing. *Il Iron Age* 97:135-8 Ja 13 '16
- Cutting metals with the oxy-acetylene flame. H. Cave. *Il Eng M* 51:827-36 S '16
- Cutting reinforced concrete units. *Concrete* 8:135 Mr '16
- Gas welding and cutting; welding heavy parts. C. K. Bryce. *Il Eng Soc W Pa* 31:696-707 N '15
- High temperature flames in metal working. H. R. Swartley, Jr. *Iron Age* 96:1122 N 11 '15; Same. *Sci Am S* 80:403 D 25 '15
- How not to use the oxyacetylene torch. W. G. Broadhurst. *Eng Rec* 74:149 JI 29 '16
- How to make oxy-acetylene welds. H. Cave. *Il Eng M* 51:724-33 Ag '16
- How to use the oxy-acetylene process. H. Cave. *Il Eng M* 51:521-7 JI '16
- Limitations of the oxy-acetylene process. H. Cave. *Il Ind Management* 52:186-92 N '16
- Metal cutting with oxy-acetylene gas. S. W. Miller. *Mach* 22:682-3 Ap '16
- Oxy-acetylene cutting practice. B. P. Legare. *Il Elec Ry J* 48:108-9 JI 15 '16

- Oxy-acetylene welding and cutting equipment. M. K. Dunham. *Mach* 22:336 D '15
- Oxyacetylene welding at Braden. A. Ek and J. R. Thill. *Il Eng & Min J* 100:928-30 D 4 '15
- Oxy-acetylene welding of aluminum. S. W. Miller. *Il Mach* 22:461-7 F '16; Abstract. *Eng M* 51:122 Ap '16
- Oxy-acetylene welding practice. S. W. Miller. *diags Mach* 22:404-6 Ja '16; Same. *Sci Am S* 81:202-3 Mr 25 '16
- Oxy-acetylene welding practice. S. W. Miller. *Il Mach* 22:575-80 Mr '16
- Oxy-acetylene welding rapidly taking its place in distribution work as a means by which many things hitherto considered impossible can be accomplished. C. Wilde. *Am Gas Light J* 105:297-9 N 6 '16
- Spanning Brazos river with 10-in. mains. C. R. Sutton. *Il Gas Age* 38:120-1 Ag 1 '16
- Strength of oxy-acetylene welds. S. W. Miller. *Il Mach* 22:886-7 Je '16
- Welding aluminum with oxy-acetylene flame. H. B. Hoover. *Il diag Mach* 22:1032-5 Ag '16
- See also Welding

Oxygen

- Chemical explanation of the effect of oxygen in strengthening cast iron. W. M. Johnson. *Am Inst Min E Bul* 110:233-5 F '16; Same. *Iron Age* 97:309 F 3 '16; Same. *Iron Tr R* 58:812-13 Ap 13 '16
- Effect of oxygen on pure iron. W. Austin. *Il Iron Tr R* 59:177-8 JI 27 '16
- Electrolytic cell for making pure oxygen and hydrogen. *Il Met & Chem Eng* 14:108-10 Ja 15 '16
- Electrolytic oxygen and hydrogen installation in a shipbuilding plant. *Il Met & Chem Eng* 14:288-9 Mr 1 '16
- I. O. C. bipolar oxygen and hydrogen generator. *Il Iron Age* 96:1520-1 D 30 '15; *Mach* 22:438-9 Ja '16; *Ry Mech Eng* 90:45-6 Ja '16; *Iron Tr R* 58:293 F 3 '16; *Int Marine Eng* 21:303-9 Je '16
- Operating features of an Illinois oxygen and hydrogen plant. Clearing, Ill. *Il diags Elec W* 67:95-6 Ja 8 '16
- Oxygen and hydrogen generating system, patented by G. Halter. *diag Met & Chem Eng* 14:342 Mr 15 '16
- Oxygen gas in blast-furnace operations. D. F. Baker. *Iron Age* 98:398-9 Ag 24 '16
- Refrigeration in France. L. Marchis. *Met & Chem Eng* 14:187-91 F 15 '16
- Sodium pyrogallate as a reagent for the determination of oxygen. J. W. Shipley. *diags Am Chem Soc J* 38:1687-1701 S '16
- See also Oxidation

Oxygen, Liquid

- Blasting with liquid oxygen in salt mines. *Met & Chem Eng* 15:653-4 D 1 '16; Same. *Sci Am S* 82:320 N 11 '16

Oxygen recorders

- Automatic oxygen carbon monoxide and carbon dioxide recorders. *Il diags Met & Chem Eng* 15:542-4 N 1 '16

Oxyhydrogen flame

- Armor plate cutting. A. F. Mitchell. *Il Eng Soc W Pa* 31:711-18 N '15
- Comparison of oxy-hydrogen and oxy-acetylene cutting. W. P. Schuck. *Il Met & Chem Eng* 15:218-19 Ag 15 '16
- Cost of gas cutting. J. F. Springer. *Mach* 22:581 Mr '16

Oyster Bay, Long Island**Architecture**

- Country house of Ormond G. Smith, esq., Oyster Bay. D. H. Fessenden. *Il plans Arch Rec* 40:114-27 Ag '16

Oyster dredges

- Submarines for the recovery of shellfish. S. Lake. *Il diags Int Marine Eng* 21:201-2 Ap '16

Oyster shells

- Houston plant of the Texas Portland cement co. H. Struckmann. *Il plan Concrete* 9:sup 15-16 Ag '16; Same cond. *Eng N* 76:230-1 Ag 3 '16

Oysters

- Artificial purification of oysters. *Sci Am S* 82:231 O 7 '16

Ozonators

- Ozone machine for alternating or direct current. *il Elec W* 68:635 S 23 '16
 Varied industrial applications of electrical ozonators. *il Elec W* 66:1329-30 D 11 '15

Ozone

- Design and operation of ozone water purification systems. S. T. Powell. *diags J Ind & Eng Chem* 8:632-6 J1 '16
 Experiment with ozone as an adjunct to artificial ventilation at the Mt. Sinai hospital, New York city. A. M. Feldman. *Am Soc Heat & V E* 21:256-7 '15; Same. *Heat & Ven* 12:35-6 Mr '15; Discussion. *Am Soc Heat & V E* 21:257-9 '15
 Ozone as an antiseptic. *Sci Am* 115:316 O 7 '16
 Ozone for ventilation. *diag Met & Chem Eng* 13:975-7 D 15 '15
 Ozone generator, patented by W. O. Freet. *diag Met & Chem Eng* 14:397-8 Ap 1 '16
 Purification of running water by ozone. *Sci Am S* 82:147 S 2 '16

P**Pacific claim agents' association**

- 8th annual convention, Tacoma, Wash., Aug. 9-11. *Elec Ry J* 48:307-11 Ag 19 '16

Pacific electric railway

- 1200-volt d-c. equipment for the Pacific electric railway, San Bernardino division. W. D. Bearce. *il map Gen Elec R* 19:706-11 Ag '16

Pacific gas & electric company

- Annual report for year ending Dec. 31, 1915. *Elec W* 68:60-2 J1 S '16
 Two new plants to deliver 25,000 kw. for San Francisco territory. *Elec W* 67:171 Ja 15 '16

Pacific ocean

- Necessity of a comprehensive exploration of the Pacific. *Sci Am* 114:504 My 13 '16

Pacific states

- Electrochemical possibilities of the Pacific coast states as compared with those of Sweden and Norway. J. W. Beckman. *Met & Chem Eng* 15:18-21 J1 '16
 Glimpses of new Pacific coast industries in the making. *il Met & Chem Eng* 15:285-8, 511-13 S 15, N 1 '16

Pack, Charles Lathrop, 1857-

- American forestry association's new president. *por Am For* 22:86-9 F '16

Packard motor company

- Comparative statement of Packard motor car company, covering the period from 1909-1917. *Automobile* 35:162 J1 27 '16
 Packard surplus is \$10,823,717. *Automobile* 35:683+ O 26 '16

Packing

- Handy packing cabinet. A. D. Palmer. *il Power* 43:25 Ja 4 '16; Same. *Eng & Min J* 101:690 Ap 15 '16
 Molding metallic packing for saturated steam locomotives. *il diags Ry Mech Eng* 90:264-5 My '16
 Packing for ammonia-compressor stuffing-boxes. F. L. Fairbanks. *diags Power* 43:179-81 F 8 '16
 Packing for hot water. C. B. Hudson. *diags Power* 44:285 Ag 22 '16
 Rod- and pump-packing pointers. A. Harper. *Power* 44:128 J1 25 '16

See also Packing rings

Packing for shipment

- British made pipe; American superiority in manufacturing, packing and delivering not admitted. W. Stewart. *Iron Age* 98:766-7 O 5 '16
 Economic methods of preparing metal shavings for packing. R. Philipp. *diags Am Soc M E J* 38:191-3 F '16; Same. *Metal Ind n s* 14:384-5 S '16
 Export trade suggestions. *U S Bur For & Dom Com misc ser* 35:89-97 '16
 Machine for testing wooden packing boxes. American society for testing materials. *Ry R* 59:22-3 J1 1 '16
 Paralleling packing of nails by electricity. *il Sci Am* 114:57 Ja 8 '16; Same cond. *J Fr Inst* 181:262 F '16

Selling in South America. M. R. Lamb. *Eng*

& Min J 102:384 Ag 26 '16

Specifications for canned goods containers. *Ry*

R 58:402 Mr 18 '16

Steel freight container. *il Ry Age* 60:1228 Je

9 '16

What science is doing to the packing box. *il*

Sci Am 115:330 O 7 '16

Why American water pipes are best. P. G.

Donald. *il diags Dom Eng* 76:461-5 S 30 '16;

Same. *Gas Age* 38:399-402 O 16 '16; Same

cond. *Am Ind* 17:30-2 Ag '16; Same cond.

Iron Age 98:400-3 Ag 24 '16; Same cond.

Metal Work 86:368-71 S 22 '16; Same cond.

Eng & Contr 46:327-8 O 11 '16; Abstract.

Eng & Min J 102:596 S 30 '16; Abstract.

Heat & Ven 13:49-50 O '16

See also Fruit, Precooling of

Packing houses

- Treatment of packing-house sewage by aeration in the presence of activated sludge. P. Rudnick and G. L. Noble. *J Ind & Eng Chem* 8:651-2 J1 '16

Packing rings

- Finishing air pump packing rings. F. R. Stewart. *diags Ry Mech Eng* 90:461 S '16
 Piston valve packing. F. W. Schultz. *Ry Mech Eng* 90:39-40 Ja '16
 Piston valve packing rings. J. C. Murdock. *Ry Mech Eng* 90:38 F '16

Paestum, Italy

- Paestum—1914. R. D. Kohn. *il Am Inst Arch* J 4:194-6 My '16

Pageants

- Small-scale structures built for St. Louis pageant. *il plan Eng Rec* 73:747 Je 3 '16
 Special stage lighting and flood lighting of a great outdoor pageant. *il Elec R & W Elec'n* 69:483-4 S 9 '16

Paige patent bill. *See* Patent laws and legislation—Compulsory working

Paint

- Blistering and cracking of paint. J. W. Luthe. *Bldg Age* 38:51-2 J1 '16
 Detection of resin in drier. E. W. Boughton. *U S Bur Stand Tech Pa* 66:1-9 '16
 Electrically conducting paint. M. James. *Elec W* 67:51 Ja 1 '16
 Electricity in paint manufacturing. *il Elec R & W Elec'n* 68:102-4 Ja 15 '16
 Electricity in the manufacture of paint and varnish. F. D. Burr. *il Elec R & W Elec'n* 68:550-1 Mr 25 '16
 How to make an inexpensive boiler-front and stack paint. *Elec W* 67:719 Mr 25 '16
 Insulating paint. *Elec W* 68:777 O 14 '16
 Light-reflecting values of white and colored paints. H. A. Gardner. *il diag J Fr Inst* 181:99-108 Ja '16; Same cond. *Am Gas Light J* 104:76-7 Ja 31 '16; Abstract. *Illum Engr* 9:226 J1 '16
 Paint that won't come off. *Sci Am* 115:497 D 2 '16

Physical characteristics of pigments and paints. H. A. Gardner. *J Ind & Eng Chem* 8:794-7 S '16

Radium and other luminous compounds; notes on a lecture by F. H. Glew. *Illum Engr* 9:249-50 Ag '16

Railway paint specifications—why? P. L. Maury. *Ry R* 57:770-1 D 11 '15

Rapid-drying paint; abstract. A. Levache. *Met & Chem Eng* 14:708 Je 15 '16

Rules for the safe handling of paints and oils. J. W. Gibbons. *diags Ry Mech Eng* 90:147-8 Mr '16

Self-luminous paint. W. S. Andrews. *diag Gen Elec R* 19:809-10 S '16; Same cond. *Elec W* 68:1015 N 18 '16

Self-luminous switches and sockets. *Sci Am S* 82:359 D 2 '16

Storage changes in vegetable and animal oils. H. A. Gardner. *J Ind & Eng Chem* 8:997-8 N '16

Study of the effect of storage on mixed paints. E. E. Ware and R. E. Christman. *J Ind & Eng Chem* 8:879-83 O '16

See also Corrosion and anti-corrosives; Pigments; White lead

Painting. *See* Frescoes; Paint; Stained glass

Painting, Industrial

- Coal tar helps maintenance of metal flumes. F. D. Pyle. *Eng Rec* 74:622 N 18 '16

Painting, Industrial—Continued

Computing costs of cleaning and painting water works standpipes. Eng & Contr 46:234 S 13 '16

Improved paint gun applicable to railway work. il Elec Ry J 48:410 S 2 '16

Lead and tar paints on the Minidoka reclamation project. Am Gas Light J 104:195 Mr 27 '16

Maintenance of way master painters' convention, Philadelphia, Oct. 17-19. Ry Age 61:705-7 O 20 '16

Master car and locomotive painters' association 47th annual convention. il Ry Mech Eng 90:515-24 O '16

Paasche air brush equipment. il Metal Ind n s 14:37 Ja '16

Paint gun used for all kinds of painting. il Eng Rec 74:576 N 4 '16

Spraco paint gun. il Mach 23:79-80 S '16

See also Automobiles—Painting; Car painting; Concrete—Painting; House painting; Lettering; Paint; Stains and staining

Painting, Structural

Painting iron and steel surfaces; committee report. Iron Tr R 59:37 J1 6 '16

Painting of iron and steel; abstract. J. Scott. diag Am Soc M E J 38:669 Ag '16

Preparation of iron and steel surfaces for painting. Ry Age 61:19-20 J1 7 '16

See also Automobiles—Painting

Painting of textiles

Painting cotton duck. Textile World 51:272 D 25 '15

Paintings**Reproductions**

Gordon Ertz and his work; reproductions of paintings. il Inland Ptr 56:516+ Ja '16

Paints. See Paint**Palaces**

Palace of Diocletian. F: Lees. il plans Arch Rec 40:549-57 D '16

Paleontology

Government fossil tract in Utah. A. Chapman. il Sci Am 113:558 D 25 '15

Tell-tale fossil; finger posts on the road to oil and mineral deposits. A. Salisbury. il Sci Am 115:348-9 O 14 '16

See also Geology; Reptiles, Fossil

Palladio, Andrea, 1518-1580

Portrait. Brickb 25:188a Ag '16

Pallograph

Instrument for recording vibrations of vessels. il Sci Am 114:64 Ja 8 '16

Pallograph; an ingenious instrument for recording vibrations. il diags Sci Am S 82:188 S 16 '16

Panama**Churches**

Old churches of Panama. C. P. Kimball. il Arch Rec 39:536-50 Je '16

Industries and resources

Central America as an export field. G. Harris and others. U S Bur For & Dom Com 113: 197-214 '16

Panama canal

Annual report; abstract. G. W. Goethals. Eng N 76:1004-5 N 23 '16

General Goethals' report on the Panama canal. Eng N 74:1287-8 D 30 '15

General Goethals reports on first year of operation of Panama canal. Eng Rec 73:17-18 Ja 1 '16

Some engineering problems of the Panama canal in their relation to geology and topography. D. F. MacDonald. il diags map U S Bur Mines Bul 86:1-88 '16

Spillways of the Panama canal. E: C. Sherman. il diags Boston Soc C E J 3:135-51 Ap '16

Surges for 16 miles from Pedro Miguel locks. R. Z. Kirkpatrick. map Eng Rec 74: 591 N 11 '16

Two years of operation of Panama canal. Eng & Contr 46:413 N 8 '16

Water-supply of Panama canal under operating conditions. R. Z. Kirkpatrick. il Eng N 75:782-4 Ap 27 '16

Locks

Corrosion of submerged metal at the Panama locks. G: W. Goethals. Eng N 76:1005 N 23 '16

First year's operation of the Panama canal locks. F. C. Clark and R. H. Whitehead. il W Soc E J 21:344-62 Ap '16; Excerpt. Elec R & W Elec N 68:631 Ap 8 '16; Discussion. W Soc E J 21:363-7 Ap '16

Slides

Annual report; abstract. G. W. Goethals. Eng Rec 74:650-1 N 25 '16

Culebra slides at Panama. Eng N 74:1041-2 N 25 '15; Same. Sci Am S 82:16 J1 1 '16

Experiments in checking the slides at Panama. G: W. Goethals. Eng N 75:417 Mr 2 '16

General Goethals reports upon the Panama slides. Ry R 57:769-70 D 11 '15

Panama canal slide critics. G. W. Goethals. Eng N 76:986-9 N 23 '16

Panama slides. E. L. Corthell. Eng Rec 73: 87-8 Ja 15 '16

Problem of the Panama canal slides. Sci Am 113:534 D 18 '15

Report of commission on the Panama canal slides. R. C. Carpenter. il maps Sibley J 30: 187-93 Mr '16; Abstract. Eng N 75:599 Mr 30 '16

Slides at Panama. R. C. Carpenter. il maps Sibley J 30:156-64 F '16

Slides at the Panama canal. G: W. Goethals. il Ry R 58:309-14, 510-13 F 26, Ap 8 '16

Panama Canal Zone

Free ports on the Panama Canal Zone. W. Neilsen. Am Ind 17:29-30 S '16

See also Panama canal

Sanitary affairs

Mosquito extermination in Panama and New Jersey. H. I. Eaton. Boston Soc C E J 3: 260-1 Je '16

Pressure chamber equalizes wash-water distribution at Miraflores filters. G: C. Bunker. il diags Eng Rec 72:787-9 D 25 '15

Tropical water supplies, with special reference to the Canal Zone and to Vera Cruz, Mexico. J. T. B. Bowles. il Am Water Works Assn J 3:482-92 Je '16

Work of plumber praised by W: C. Gorgas who reclaimed Panama Zone. Dom Eng 74: 73 Ja 15 '16

Panama-Pacific international exposition. See San Francisco—Panama-Pacific international exposition

Pan-American scientific congress, 2d

Abstracts of papers. Munic J 40:57-9 Ja 13 '16

Conservation at the Pan-American scientific congress. Am For 22:117-19 F '16

Engineering at Pan-American scientific congress. Eng N 75:44-5 Ja 6 '16

Meeting, Washington, D. C., Dec. 27, 1915-Jan. 8, 1916. Power 43:135-6 Ja 25 '16; Eng & Min J 101:289-90 F 12 '16

Pan-American science. Sci Am 114:344 Ap 1 '16

Pan-Americanism

Great Pan American opportunity. J: Barrett. Eng M 50:821-9 Mr '16

Pancreas

Reaction of the pancreas and other organs. J. H. Long and F. Fenger. Am Chem Soc J 38:1115-28 My '16

Panelboards. See Switchboards**Pantograph**

Using the pantograph for odd scales. T. H. Mycum. Eng & Contr 46:68-9 J1 19 '16

Paper

Art of coating paper. diags Engineer 122:157-8, 182-4, 204-5, 249-50, 273-4 Ag 25-S 8, 22-29 '16

Buying paper by test. Factory 16:192+ F '16

Paper for artistic printing. D. Hunter. il Sci Am S 82:108 Ag 12 '16

Printing ink and printing paper; technical details. Sci Am S 81:43 Ja 15 '16

See also Kraft paper; Photographic paper; Stationery; Waste paper

Paper—Continued**Analysis**

Analysis and composition of some cigarette papers. S. Jordan. *J Ind & Eng Chem* 8: 812-13 S '16

Testing

Method for determining the strength of paper when wet. E. O. Reed. *J Ind & Eng Chem* 8: 1003-4 N '16

Paper, Photographic. See Photographic paper

Paper, Waste. See Waste paper

Paper as fuel

Paper pulp balls for fuel. *il Sci Am* 115:65 JI '15 '16

Waste newspapers as a fuel for military camps. *il Sci Am* 114:102 Ja 22 '16

Paper cutting machines

Cutting machines. W. H. Seed. *Inland Ptr* 57: 766-8 S '16

Paper making and trade

Effects of moisture introduced into the digester in the cooking of soda pulp. S. D. Wells. *J Ind & Eng Chem* 8:601-2 JI '16

Experimental notes on the preparation of fireproof writing paper. R. G. Myers. *J Ind & Eng Chem* 8:888-9 O '16

Ground-wood pulp; with samples of papers. J. H. Thickens and G. C. McNaughton. *il maps U S Agric Bul* 343:1-151 '16

Industrial preparedness for peace; cutting costs in the paper mill. M. Chipman. *il Sci Am* 114:526+ My 20 '16

Manufacture of paper pulp and by-products; discussion. *J Ind & Eng Chem* 8:958-62 O '16

Master minds of type and press. J. S. Rite-nour. *Inland Ptr* 57:517-18, 659 JI-Ag '16

Paper and charcoal from hopvines. *Sci Am* 114:130 Ja 29 '16

Paper from cotton stalks. *Sci Am* 115:241 S 9 '16

Paper from grapevines. *Sci Am* 81:80 Ja 29 '16

Paper materials. *Am Ind* 16:43 My '16

Paper pulp problem. *Sci Am* 114:74 Ja 15 '16

Paper situation; factors that are responsible for the present stringency. W. B. Wheelwright. *Sci Am* 114:472-3 My '16

Papermaking and its machinery. *il diags Engineer* 120:309-10, 332-4, 358-61, 380-3, 403-5, 426-8, 450-2, 471-3, 499-501, 521-3, 543-6, 567-70, 592-5, 615-18 O 1-D 31 '15

Proposed method for the profitable utilization of waste sulfite liquor. H. V. Tartar. *J Ind & Eng Chem* 8:226-8 Mr '16

Recent paper statistics. *Sci Am* 114:565+ My 27 '16

Seleniferous pyrites in the manufacture of sulfite cellulose. McMillan. *J Ind & Eng Chem* 8:273-9 Mr '16

Use of bark for paper specialties. O. Kress. *J Ind & Eng Chem* 8:883-6 O '16

Zacaton, a new paper-making material. *Sci Am* 114:76 Ja 15 '16

See also Digesters; Paper mills; Paper textiles; Wood pulp

Paper making machinery

Papermaking and its machinery. *il diags Engineer* 120:332-4, 358-61, 380-3, 403-5, 426-8, 450-2, 471-3, 499-501, 521-3, 543-6, 567-70, 592-5, 615-18 O 8-D 31 '15

Paper mills

Electrically driven paper mill. T. Wilson. *il diag plan Power* 43:756-62 My 30 '16

Paper mill power plants. W. F. Rockwell. *Power* 42:903-4 D 28 '15

Power cost in paper mill. T. Wilson. *plans Power* 44:190-2 Ag 8 '16

See also Paper making and trade

Paper pulp

Applicability of the paper pulp filter to the separation of solids from liquids. S. L. Jodidi. *J Fr Inst* 182:61-7 JI '16

General applicability of the paper pulp filter to quantitative analysis. S. L. Jodidi and E. H. Kellogg. *J Ind & Eng Chem* 8:317-19 Ap '16

Paper textiles

Paper thread and cloth; a substitute for cotton. W. Heinke. *il Met & Chem Eng* 14:284-5 Mr 1 '16

Review of the paper textile industry. *il Textile World* 51:619, 625+ Ja 15 '16; Same. *Sci Am* 81:247 Ap 15 '16

Parabolic mirror; with discussion. F. A. Benford, jr. *diags Illum Eng Soc* 10:905-31 no 9 '15

Parachutes

Parachute; its development and its role in aviation. *il Sci Am* 115:7 JI 1 '16

Paraguay

Commerce

Markets for American hardware in Argentina, Uruguay and Paraguay. A. Hale. *U S Bur For & Dom Com misc ser* 43:1-64 '16

Parallel operation. See Dynamos

Parasites

See also Insects, Injurious and beneficial

Parcel post

Export trade suggestions. *U S Bur For & Dom Com misc ser* 35:59-70 '16
Wanted—a square deal. M. H. Lundy. *Ry Age* 61:467-8 S 15 '16

See also Railway mail service

Paris, Texas

Fire, 1916

Three reinforced-concrete buildings alone resist flames in Paris, Texas, fire. *il diag Eng Rec* 73:572-3 Ap 29 '16

Park buildings

Field house and comfort station. *il plan Bldg Age* 38:25-30 S '16

Parks

Concrete improvements in Portage park, Chicago. *il diags Concrete* 8:150-1 Ap '16

Cost of spading and raking a small park. H. R. Ferriss. *Eng & Contr* 45:230 Mr 8 '16

Labor costs of preparing and seeding a small park. H. R. Ferriss. *Eng & Contr* 45:211 Mr 1 '16

Park-development problems in the hard-coal region. K. B. Lohman. *il plan Coal Age* 9: 914-17 My 27 '16

Park grading by day labor. *il diag Eng N* 76:966-7 N 23 '16

Park system of Kansas City, Mo. G. B. Ford. *il map Arch Rec* 40:498-504 D '16

Parks and the public. J. J. Levison. *il Am For* 21:1114-16 D '15

Steel maker gives farm to Sharon. C. F. Williams. *il Iron Tr R* 59:324-5 Ag 17 '16

Washington's new parks. W. W. Harts. *map Am Inst Arch J* 4:468-70 N '16

See also Amusement parks; Parkways; Water fronts; Zoological gardens; also subdivision Parks under names of cities, e.g. New York (city)—Parks; Philadelphia—Parks

Lighting

Sanitary district lighting of Chicago parks. *Elec W* 68:541 S 9 '16

Parks, National. See National parks

Parkways

Practical street construction. *Munic J* 40:613-16 My 4 '16

Parlor cars

Parlor cars to stimulate traffic. *il map Elec Ry J* 47:392-4 F 26 '16

Parlors

Parlor in house at 94 Federal street, Salem, Mass.; measured and drawn by G. Robb. *Brickb* 24:291-2 D '15

Parlor in house at 6 Andover street, Salem, Mass.; measured and drawn by G. Robb. *Brickb* 25:13-14 Ja '16

Parsons, William Barclay, 1859-

Sketch. *por Eng Rec* 73:265 F 19 '16

Partitions

Arrangement of sliding partitions. E. J. G. Phillips. *il diags plan Bldg Age* 38:59-61 My; 31-4 Je; 49-51 JI '16

Partnership

Getting out of a partnership difficulty. E. J. Buckley. *Metal Work* 85:232 F 11 '16

Protecting one partner against another. E. J. Buckley. *Metal Work* 85:199 F 4 '16

Pascal's hydrostatic law

Pascal's law. *diag Mach* 22:988-9 JI '16

Passenger cars. See Cars

Passenger fares. See Railroads—Fares

Passenger traffic. See Railroads—Passenger traffic

Passenger traffic officers, American association of. See American association of passenger traffic officers

Passivity of metals

Anodic relations of passive iron with notes on polarization potentials as influenced by external gas pressures. H. G. Byers and S. C. Langdon. *diags Am Chem Soc J* 38: 362-74 F '16

Passive state of metals. C. W. Bennett and W. S. Burnham. *Met & Chem Eng* 14:479 My 1 '16

Passivity of iron. *Sci Am S* 82:368 D 2 '16

Paste

Dry paste for furnace. *Metal Work* 85:79 Ja 7 '16

Paste. J. J. Plegier. *il Inland Ptr* 58:63-4 O '16

Patent laws and legislation

British patent laws. *Eng & Min J* 101:773 Ap 29 '16

Chemical patents; actions for infringement. S. C. Mastick. *J Ind & Eng Chem* 7:1071-81 D '15

Extension in patent cases. *Sci Am* 115:64+ JI 15 '16

Faults of our patent laws. C. R. Speers. *Eng N* 75:478-9 Mr 9 '16

Moratorium concerning patents, trade marks, etc. *Sci Am* 115:236 S 9 '16

New act to protect enemy patents. *Engineer* 120:627-8 D 31 '15

New French and Russian patent laws. *Am Ind* 16:43-4 F '16

New trade-mark and patent law in South Africa. *Sci Am* 115:152 Ag 12 '16

Safety points for inventors. P. Cook. *Ry Age* 61:508-9 S 22 '16

Who owns the patent rights? A. Scheible. *Mach* 22:467 F '16

Compulsory working

Paige bill on compulsory working of patents in the United States. J. H. Brickenstein. *J Ind & Eng Chem* 8:385 Ap '16

Patent office. See United States—Patent office

Patents

Acquisition of enemy patent rights. *Engineer* 120:459-60 N 12 '15

Another reinforced-concrete patent decision. E. Godfrey. *Eng N* 76:668-9 O 5 '16

Appeal for better patents. O. Abdt. *Mach* 22: 957-8 JI '16

Cameron septic patents expired this week. G. W. Fuller. *Eng Rec* 74:436 O 7 '16

Canada and the International patent convention. E. B. Marshall. *Sci Am* 115:281 S 23 '16

Concrete dock patent upheld in Court of appeals. *Eng N* 76:961-2 N 16 '16

Filter patent claims invalid; Minneapolis wins suit against Ira H. Jewell. *Eng Rec* 74:583-4 N 11 '16

French decree regarding the use of military inventions by the government. *Sci Am* 115: 246+ S 9 '16

German patent-bibliography. E. N. Jessop. *J Ind & Eng Chem* 8:1053-4 N '16

Good patents often unworkable. W. Tibbetts. *Automobile* 34:119+ Ja 20 '16

Is development invention? *diags Eng N* 75:813-16 Ap 27 '16

Japanese patents and copyrights. J. K. Goodrich. *Am Ind* 17:30-1 S '16

Judge Anderson's decision on the Bone retaining wall. *Eng N* 75:338-9 F '16

National septic process protective league organizes. *Eng & Contr* 45:281-2 Mr 22 '16

Ownership of patents; factors determining rights of employers and employees. G. H. Benjamin. *Iron Age* 97:667 Mr 16 '16

Patents and the consideration due them. *Ry R* 58:647-8, 678-9, 715-16, 752-4; 59:18-19 My 6-27, JI 1 '16

Patents that expired in 1915. *Sci Am S* 81:47 Ja 15 '16

Seeming paradox; the more you put into a patent claim, the less it covers. *Sci Am* 114: 396 Ap 15 '16

Two Turner patents defeated. *Eng N* 76:769-70 O 19 '16

What is a patent worth? *Mach* 22:423-4 Ja '16

See also Automobile patents; Bridges—Patents; Chemical patents; Concrete, Reinforced—Patents; Inventions; Patent laws and legislation; Pavements—Patents; Textile patents; Trade marks; United States—Patent office

Patents, Compulsory working of. See Patent laws and legislation—Compulsory working

Patrol boats

Speedy patrol boats for the U. S. navy. *il Sci Am* 114:122+ Ja 29 '16

Patrol squadron. See Naval reserve

Pattern making

Computing shrinkages for patterns. H. N. Tuttle. *diag Foundry* 44:395 Ag '16

Lengths of sides of polygons. S. L. Cook. *Foundry* 44:62a F '16

Making a cylinder-head pattern. E. W. Wallbank. *plan Foundry* 43:490 D '15

Making the pattern for a piston valve cylinder. D. Gordon. *diags Foundry* 44:267-72 JI '16

Making the pattern for an engine frame. E. W. Wallbank and E. F. Weinman. *il diag Foundry* 44:116-17 Mr '16

Master pattern for an oil pan. J. G. Koegle. *diags Foundry* 44:115 Mr '16

Modeling clay as an adjunct to the foundry. C. Vickers. *il Foundry* 44:68-70 F '16

Mounting patterns for molding machine work. E. I. Chase. *diags Foundry* 44:57-9 F '16

Pattern plates for reducing operating costs. D. Dalrymple. *il diags Foundry* 44:10-15 Ja '16

Problem in pipe foundry practice. F. M. Warner. *Foundry* 44:201-2 My '16

Problems in pipe foundry practice discussed. R. Robertson. *diags Foundry* 44:53-6 F '16

Screw chuck for patternmakers. M. E. Dugan. *diag Foundry* 44:378 S '16

See also Foundry practice; Sheet metal work—Pattern making; Templates

Pattern storage

How patterns are stored in an English foundry. A. Hill. *Foundry* 44:139-40 Ap '16

Storing patterns easily. *il Factory* 17:364+ S '16

Pavements

Annual report of the Bureau of highways of the borough of Manhattan, New York. E. W. Stern. *Eng Rec* 74:225-6 Ag 19 '16

Brick and concrete pavement construction. C. A. Lattshaw. *Munic J* 40:578-80 Ap 27 '16

Capitol terraces at last made waterproof. *il diags Eng N* 76:629-32 O 5 '16

Classification of pavements in Kansas City. Mo. C. Hill. *Eng & Contr* 44:463 D 15 '15

Comparative values of various approved forms of street pavements and roads. E. M. Requa. *Eng & Contr* 45:481-3 My 24 '16

Concrete and asphalt mixing plant saves its cost in one year. G. H. Binkley. *il diags Elec Ry J* 47:728-31 Ap 15 '16

Experience with different kinds of pavements. R. B. Gage. *Munic J* 40:863-4 Je 22 '16

Healer construction for pavement in Houston, Texas. *diag Eng & Contr* 45:408 My 3 '16

Highway crossings and track in paved streets. *diags Ry R* 58:702-5 My 20 '16

Millions for paving controlled by handful of pins. *il map Eng Rec* 72:714-17 D 11 '15

Paving along street railroad tracks. *diags Munic J* 40:609-11 My 4 '16

Paving by direct labor versus contract work. C. A. Mullen. *Munic Eng* 51:178-80 N '16

Paving in San Antonio, Texas. E. A. Kingsley. *il Munic J* 40:131-5 F 3 '16

Paving of the streets of London. *Engineer* 121: 203-4 Mr 3 '16

Paving street railway tracks. R. F. Palmblade. *Elec Ry J* 47:304-5 F 12 '16

Paving the slum districts. *Munic J* 41:259-60 Ag 31 '16

Railway-crossing pavement with wedge runoff. *diags Eng N* 75:421-2 Mr 2 '16

Road surfaces and traffic speeds. J. L. Bauer. *Eng & Contr* 44:463 D 15 '15

Small-city pavings in Kansas. *il Eng N* 75: 542-3 Mr 23 '16

Standard pavement sections of Portland, Ore. *diags Eng & Contr* 46:108 Ag 2 '16

Pavements—Continued

- Street paving in 1915 in Manhattan borough New York city. E. W. Stern. Eng & Contr 46:292-3 O 4 '16
- Street railway track construction in paved streets. R. K. Compton. Good Roads n s 11: 113-15 Mr 4 '16
- Who shall select the types of city pavements? G. C. Emerson. Eng Rec 74:541 O 28 '16
- See also* Bridges—Floors; Curbs; Gutters; Mosaics; Paving machinery; Roads; Sidewalks; Street oiling; Street openings; Streets

Contracts

- Contract work in Kansas City. Munic J 40: 374 Mr 16 '16
- Nashville receivership case will not longer delay paving. Munic Eng 51:57-9 Ag '16

Cost

- Brick and asphalt paving by day labor. G. C. Brehm. Eng N 75:1033 Je 1 '16
- Brick pavement construction by day labor; itemized costs of three jobs by city forces in Carlisle, Pa. J. C. Hiteshew. il Munic J 39:973-7 D 30 '15
- City paving compared with contract work. A. F. Meyer. Eng N 75:1073 Je 8 '16
- Comparative cost of various types of pavement. E. W. Stern. Eng & Contr 46:7-8 Jl 5 '16
- Constructing a bituminous macadam street. Munic J 40:274 F 24 '16
- Construction details and costs of pavements. Munic J 40:159-71, 402-3 F 3, Mr 23 '16
- Cost analysis of asphaltic-concrete pavements. Eng N 76:103 Jl 20 '16
- Cost analysis of double-course pavement. A. F. Comstock. Eng Rec 73:171-2 F 5 '16
- Cost data for asphaltic macadam pavement by day labor. G. C. Brehm. Munic Eng 51:98 S '16
- Cost data on 1,170 sq. yd. of asphaltic macadam by day labor at Waynesboro, Pa. Eng & Contr 46:303 O 4 '16
- Cost of removing and replacing pavements incident to the installing of heating lines in city streets. W. F. Verner. Heat & Ven 13: 33-7 My '16
- Cost of rocmac at Springfield, Mass. Eng & Contr 46:223 S 6 '16
- Cost of sheet asphalt and brick pavements at Montreal, Que. Eng & Contr 45:495 My 31 '16
- Method and cost of bitulithic paving. Pierce co., Wash. D: H. White. il Eng N 75:976-7 My 25 '16; Same. Good Roads n s 11:210 My 6 '16; Same. Eng Rec 74:17-18 Jl 1 '16; Excerpt. Eng & Contr 46:223 S 6 '16
- Methods and results of cost recording on pavement work at St. Paul, Minn. J. E. Carroll. Eng & Contr 44:441-4 D 8 '15
- Pavement costs in Walla Walla, Wash. Munic J 40:301-2 Mr 2 '16
- Prevailing costs of labor and materials; statistics of pavements in the United States; tabulation. Good Roads n s 12:52 Jl 1 '16
- See also* Pavements—Maintenance and repair; Pavements, Asphalt—Cost; Pavements, Brick—Cost; Pavements, Concrete—Cost

Crowns

- Street-car companies want less crown in pavements. Eng Rec 74:172-3 Ag 5 '16

Cutting

- Breaking up asphalt for new street railway construction. E. G. Tilton. il Eng & Contr 45:406 My 3 '16
- Machine used in the department of public works, Portland, Oregon, for cutting pavement samples. diags Good Roads n s 11: 215-16 My 6 '16

Expansion Joints

- Asphalt-joint filling machine. J. S. Bright. il Eng N 76:851-2 N 2 '16
- Barrett fibre-weld expansion joint. il Munic J 40:384-5 Mr 16 '16; Good Roads n s 11:175 Ap 1 '16
- Evolution in armor plate. diags Munic Eng 51:156 O '16
- Hydrex expansion joint strip. il Munic Eng 51:202 N '16

- Joint location and construction; committee report. Concrete 8:164 Ap '16
- Michigan omits joints in concrete pavements. D. A. Thomas. Eng N 76:609-10 S 28 '16
- Monolithic brick paving for wide streets. W: R. Paige. diag Eng N 76:979 N 23 '16
- New expansion joint material for building construction. Sci Am 115:41 Jl 8 '16
- Should wider joints be provided in concrete roads laid late in the season? H. S. Van Scoyoc. il Eng Rec 74:465-6 O 14 '16
- Wood-block expansion joints in concrete pavements. P. L. Brockway. Eng N 76:905 N 9 '16

Experiments

See Pavements, Experimental

Failures

- Effects of low temperature on paving in the track allowance. il Elec Ry J 47:916-18 My 13 '16
- Pavement damage calls for truck-weight restrictions. E. W. Stern. il Eng Rec 74:495-6 O 21 '16
- Pavement near car lines heaves during cold spell. J. T. Dovey. il Eng Rec 73:640-2 My 13 '16

Fillers

- Methods of applying bituminous mastic fillers for block pavements. J: S. Crandell. il Eng & Contr 45:166-7 F 16 '16
- Pitch-sand mastic filler. J: S. Crandell. il Munic J 40:271-2 F 24 '16

Finance

- Assessing paving costs. G: C. Warren. Munic J 40:723-4 My 25 '16; Abstract. Good Roads n s 11:228 My 27 '16
- Objections to city paying total cost of street paving. G: C. Warren. Munic Eng 51:106-7 S '16
- Paving problems in Texas and Missouri cities. G: Chartrand. Eng N 75:1102 Je 8 '16
- Prorating paving cost among property owners. H. M. Talbott. diags Eng N 76:14-15 Jl 6 '16

Foundations

- Advancement in the construction of brick pavements. W: C. Perkins. Eng & Contr 45: 93-4 Ja 26 '16
- Artificial foundations for pavements. W. W. Crosby. Eng & Contr 45:449-50 My 17 '16
- Committee of American wood preservers' association advocates mortar bed for wood blocks. Eng Rec 73:154 Ja 29 '16
- Cracks in pavement foundations. P. L. Brockway. Munic J 41:312-13 S 14 '16
- Cushions for pavements of the block type. M. B. Greenough. Eng & Contr 45:57-9 Ja 19 '16
- Foundations for pavements. F. K. Duncan. Munic J 39:984 D 30 '15
- Foundations for road and street pavements. J. W. Hunter. Good Roads n s 11:159-60 Ap 1 '16
- In monolithic pavements in Vermilion county, Illinois, brick are laid directly on concrete base. H. H. Edwards. il diag Eng Rec 74: 400-2 S 30 '16
- Methods of brick pavement construction; recent development of the monolithic type and the mortar or cement-sand cushion. il Good Roads n s 11:55-61 F 5 '16
- Monolithic and semi-monolithic brick roads both satisfactory. W: C. Perkins. Eng Rec 74:569-70 N 4 '16
- Monolithic brick pavements. M. B. Greenough. il Munic Eng 50:87-90 Mr '16; Same cond. Munic J 40:369-70 Mr 16 '16; Excerpts. Eng & Contr 45:322-4 Ap 5 '16
- Monolithic brick pavements successful in Illinois. il Munic Eng 50:31-2 Ja '16
- Monolithic brick paving for wide streets. W: R. Paige. il diag Eng N 76:978-80 N 23 '16
- Monolithic brick paving slabs show high bond. C. C. Wiley. il Eng Rec 73:86 Ja 15 '16
- Pavement sand cushion becoming obsolete. G: L. Wilson; H. B. Nichols. Elec Ry J 46: 1126 D 4 '15
- Pavements on clay soil. P. L. Brockway. Munic J 41:417-18 O 5 '16

Pavements—Foundations—Continued

- Railway uses old sandstone blocks for paving foundation. *il Elec Ry J 48:941 O 28 '16; Eng Rec 74:585 N 11 '16*
- Recent developments in brick pavement construction. M. B. Greenough. *il Munic J 41:412-15 O 5 '16*
- Sand-cement bed and mortar bed in Illinois brick road construction. *Eng & Contr 46:110-11 Ag 2 '16*
- Specifications of National paving brick manufacturers' association for brick pavements of green concrete and sand-cement super-foundation types. *il Eng & Contr 46:300-1 O 4 '16*
- Texas soil requires paving base to be reinforced. *il Eng N 75:663 Ap 6 '16*
- Uniformity required in pavement foundations. W. W. Crosby. *Eng & Contr 45:453-4 My 17 '16*

See also Pavements, Concrete

Inspection

- Municipal inspection in New York. F. Kleeberg. *Munic J 39:978-80 D 30 '15*

Laws and regulations

- Development of the street opening problem; its effect and control. N. S. Sprague. *Good Roads n s 11:119-22 Mr 4 '16; Abstract. Munic J 41:189 Ag 17 '16*

Maintenance and repair

- Importance of maintenance in selecting pavements. C. D. Pollock. *Munic J 41:448-9 O 12 '16; Same cond. Good Roads n s 12:199 N 4 '16*
- Maintenance and repair of city pavements. G. W. Tillson. *Good Roads n s 11:32 Ja 15 '16*
- Maintenance costs of bituminous macadam and bituminous concrete at Portland, Me. *Eng & Contr 46:219 S 6 '16*
- Maintenance of pavements. J. L. Bauer. *Good Roads n s 10:309 D 4 '15*
- Oiled pavements smoothed with scarifier and scraper. *il Eng Rec 74:232-3 Ag 19 '16*
- Pavement maintenance in Montclair, N. J. *il Munic J 39:873-5 D 9 '15*
- Portable plant, Charlotte, N. C., makes bituminous-pavement patches. S. H. Lea. *il Eng Rec 74:555-6 N 4 '16*
- See also Pavements, Brick—Maintenance and repair; Pavements, Concrete—Maintenance and repair*

Patents

- Warren bros. co., Filbertine patent upheld by United States court. *Good roads n s 11:264-6 Je 24 '16*

Records

- Forms for reporting pavement history and traffic. *Eng N 75:458 Mr 9 '16*
- Pavement construction records at Denver, Colorado. *Eng N 76:271 Ag 10 '16*
- Paving records, Topeka, Kan. *Eng N 75:468-9 Mr 9 '16*
- Photographic records of pavements. *il Munic J 40:437 Mr 30 '16*
- Photographs of samples aid city paving records in Portland, Ore. *il Eng Rec 74:350 S 16 '16*

Repair

See Pavements—Maintenance and repair

Specifications

- Asphaltic-concrete paving. *Eng N 76:993 N 23 '16*
- Changes in new specifications for paving in St. Louis. *Eng N 76:58-9 Jl 13 '16*
- Granite-block pavement for a residential street in Brooklyn, N. Y. *il Eng N 76:491 S 14 '16*

Statistics

- Additional paving data. *Munic J 40:402 Mr 23 '16*
- Paving by municipal forces. *Munic J 40:336 Mr 9 '16*
- Paving statistics of American cities for 1915. *Munic J 40:144-81 F 3 '16*
- Statistics of pavement construction in 1915 in United States. *Eng & Contr 45:sup37-47 Ap 5 '16*

Statistics on paving in cities of the United States, tables *Good Roads n s 12:6-14, 32-46 Jl 1 '16*

Street pavements—1916; tabulation. *Munic Eng 50:146-50 Ap '16*

Street paving in Texas. L. W. Kemp. *Munic Eng 51:199 N '16*

Surface treatment

- Asphalt top for old brick pavements. D. T. Pierce. *il Munic Eng 50:60-1 F '16*
- Concrete pavement with bituminous top. H. J. Hammer. *il Munic J 40:363-4 Mr 16 '16*
- Laying concrete highway with bituminous wearing surface—details of operation and cost. *il Munic Eng 50:103-6 Mr '16*
- Methods and cost of treating old macadam streets in Milwaukee, Wis., with asphaltic oil. S. E. Bates. *il Eng & Contr 46:4-6 Jl 5 '16*
- Reducing slippery pavements in San Francisco. A. J. Cleary. *il Eng N 75:608-9 Mr 30 '16*
- Reducing slippery pavements in San Francisco. D. J. McCoy. *il Munic Eng 50:239-40 Je '16*
- Resurfacing old Belgian block pavements with bituminous surface. *Eng & Contr 46:118-19 Ag 2 '16*
- Surfacing old brick pavement with sheet asphalt. *Eng & Contr 46:393 N 1 '16*
- Tar-coated concrete pavement in Ann Arbor, Mich. M. Osgood. *Eng N 75:352-3 F 24 '16; Same. Eng & Contr 45:363-5 Ap 19 '16*
- Tests of concrete blocks and vitrified brick. F. A. Churchill. *Munic Eng 51:184-5 N '16*
- Waterbound macadam tar-surfaced stands heavy traffic. *Eng Rec 73:744-5 Je 3 '16*

See also Pavements, Bituminous; Roads, Bituminous; Roads, Oiled

Tables, calculations, etc.

- Computing paving outside curved curbing. R. A. Lewis. *diag Eng N 76:463-4 S 7 '16*

Terminology

See Roads—Terminology

Testing

- Comparative tests of the wearing qualities of paving bricks, concrete, mortar and neat cement. F. L. Roman. *il Munic Eng 51:53-6 Ag '16*
- Tests of concrete blocks and vitrified brick. F. A. Churchill. *Munic Eng 51:184-5 N '16*

Pavements, Asphalt

- Asphalt paving in Buffalo. *Munic Eng 51:107-8 S '16*
- Early asphalt pavements. C. Richardson. *Eng N 76:1001 N 23 '16*
- Heater melts snow to finish asphalt paving job. J. T. Child. *il Eng Rec 73:461 Ap 1 '16*
- Methods of prominent asphalt contractor. *il Munic Eng 50:204-6 My '16*
- Motor trucks in state road work; resurfacing heavy traffic road with two-inch asphalt blocks. *il Munic J 41:149-51 Ag 10 '16*
- Municipal asphalt repairs in Scranton. J. G. Hayes. *il Munic J 40:136-40 F 3 '16*
- Rock asphalt paving mixture at Salt Lake City, Utah. *Eng & Contr 46:211 S 6 '16*
- Undermined asphalt pavement withstands unusual stresses. *il Eng Rec 73:285 F 26 '16*
- Utilization of pulverized earth in asphaltic paving mixtures. F. P. Smith. *Good Roads n s 11:203-4; Discussion. 204-5 My 6 '16*

See also Asphalt plants; Pavements, Bituminous; Pavements, Bituminous concrete

Cost

- Asphalt pavement costs with municipal plant. J. W. Cunningham. *Eng N 76:375 Ag 24 '16*
- City makes money by purchasing plant and laying its own asphalt paving. C. E. Ridley. *Eng Rec 73:767-9 Je 10 '16*

Pavements, Bitulithic

- Method and cost of bitulithic paving. Pierce co., Wash. D. H. White. *il Eng N 75:976-7 My 25 '16; Same. Good Roads n s 11:210 My 6 '16; Same. Eng Rec 74:17-18 Jl 1 '16; Excerpt. Eng & Contr 46:223 S 6 '16*

Pavements, Bituminous

- Bitoslag pavement. *il Good Roads n s 11:216 My 6 '16*

Pavements, Bituminous—Continued

- Bituminous macadam and bituminous concrete pavements. A. H. Blanchard. il Munic J 41:405-11 O 5 '16; Same cond. Good Roads n s 11:238-41 Je 3 '16; Same cond. Munic Eng 50:231-4 Je '16
- Construction details; statistics of pavements in the United States. Good Roads n s 12:47-8 J1 1 '16
- National pavement in New Jersey. il Munic J 41:423-4 O 5 '16
- New bituminous pavement. il Munic J 40:140-2 F 3 '16
- Sheet-pavement problems in St. Louis. J. L. Laxton. Eng Rec 74:505 O 21 '16

See also Pavements, Asphalt; Pavements, Bituminous concrete; Roads, Bituminous

Pavements, Bituminous concrete

- Asphaltic concrete pavements. D. T. Pierce. Elec Ry J 47:1051-2 Je 3 '16
- Asphaltic-concrete paving at Oak Park, Ill. Eng N 76:788-90 O 26 '16
- Asphaltic-concrete paving in Fort Wayne, Ind. Eng N 76:993 N 23 '16
- Bituminous-carpeted concrete road of new type. il Eng N 75:271 F 10 '16
- Construction of an asphalt macadam road with stanolin paving asphalt. il Good Roads n s 10:314 D 4 '15
- Cost analysis of asphaltic-concrete pavements. Eng N 76:103 J1 20 '16
- Functions performed by stone in the bituminous concrete pavement. R. B. Gage. Good Roads n s 11:122-4 Mr 4 '16
- 750 yard asphalt plant turns out 1,200 yards of asphaltic concrete per nine-hour day. il plan Munic Eng 50:79-81 F '16
- Topeka pavements in the borough of Queens, New York city. W. B. Spencer. Good Roads n s 10:311 D 4 '15

Pavements, Brick

- Advancement in the construction of brick pavements. W. C. Perkins. Eng & Contr 45:93-4 Ja 26 '16
- Asphalt-impregnated brick. Munic J 40:480 Ap 6 '16
- Brick on old macadam base. il Munic J 39:980-1 D 30 '15
- Brick pavement carries 4492 vehicles a day. Eng Rec 74:54 J1 8 '16
- Brick pavement construction by day labor; itemized costs of three jobs by city forces in Carlisle, Pa. J. C. Hiteshew. il Munic J 39:973-7 D 30 '15
- Brick streets and roads. H. E. Breed. Good Roads n s 11:117-19 Mr 4 '16; Excerpt (Sand requirements for brick pavements). Eng & Contr 45:296 Mr 29 '16
- Brick surface affords new lease of life for macadam. il Munic Eng 50:68 F '16
- Construction details; statistics of pavements in the United States. Good Roads n s 12:48-9 J1 1 '16
- Design of brick pavements. C. C. Brown. il Munic Eng 51:82-6, 124-32 S-O '16
- Double course brick pavement. Eng & Contr 46:296 O 4 '16
- Dual type of brick paving aids traffic on grades. il Eng Rec 73:50 Ja 8 '16
- Durability of brick pavements. A. D. Flinn. Munic Eng 50:145 Ap '16
- Laying a monolithic brick pavement in car track. diag Eng N 75:77-8 Ja 13 '16
- Methods of brick pavement construction; recent development of the monolithic type and the motor or cement-sand cushion. il Good Roads n s 11:55-61 F 5 '16
- Monolithic brick pavements. M. B. Greenough. il Munic Eng 50:87-90 Mr '16; Same cond. Munic J 40:369-70 Mr 16 '16; Excerpts. Eng & Contr 45:322-4 Ap 5 '16
- Monolithic brick paving for wide streets. W. R. Paige. il diag Eng N 76:978-80 N 23 '16
- Monolithic brick paving slabs show high bond. C. C. Wiley. il Eng Rec 73:86 Ja 15 '16
- Radical changes in brick-pavement construction. P. C. McArdle. il Eng N 75:163-5 Ja 27 '16
- Recent developments in brick pavement construction. M. B. Greenough. il Munic J 41:412-15 O 5 '16

Specifications of National paving brick manufacturers' association for brick pavements of green concrete and sand-cement superfoundation types. il Eng & Contr 46:300-1 O 4 '16

- Strong bond in monolithic pavement. il Munic Eng 50:207 My '16
- Tests of concrete blocks and vitrified brick. F. A. Churchill. Munic Eng 51:184-5 N '16
- Use of brick for station platforms. E. G. Zorn. il Ry R 58:4-5 Ja 1 '16
- Worn-out macadam road in Cleveland, Ohio, resurfaced with brick. il Good Roads n s 11:8 Ja 1 '16

See also Bricks; Roads, Brick

Cost

- Cost of brick pavements. V. M. Peirce. Good Roads n s 12:190-1 N 4 '16

Maintenance and repair

- Maintenance of brick pavements. C. C. Brown. il Munic Eng 51:168-74 N '16

Pavements, Concrete

- Brick and concrete hillside pavements in Birmingham, Alabama. il diag Eng N 74:1164-5 D 16 '15
- Concrete apron for street intersections. plan Eng & Contr 46:301 O 4 '16
- Concrete pavement at Park Ridge, Ill. Eng & Contr 44:470 D 22 '15
- Concrete pavement experience, Grand Junction, Colo. Eng N 75:897 My 11 '16
- Concrete pavement tamped by rolling. P. E. Clark. il diag Good Roads n s 11:105-7 Mr 4 '16
- Concrete pavement with bituminous top. H. J. Hanmer. il Munic J 40:363-4 Mr 16 '16
- Concrete pavements in suburban and rural districts near large cities. E. W. Stern. Concrete 9:49-51 Ag '16
- Concrete paving in 1915; tabulation. Concrete 8:227 My '16
- Construction details; statistics of pavements in the United States. Good Roads n s 12:49-50 J1 1 '16
- Details of Sioux City concrete paving practice. T. H. Johnson. Eng N 76:830-1 N 2 '16
- Emphasizing the finishing process in concrete paving. T. H. Johnson. Eng & Contr 45:415 My 3 '16
- Good results from unusual concrete paving methods in Sioux City, Ia. T. H. Johnson. Concrete 8:125-6 Mr '16; Excerpts. Eng Rec 73:317-18 Mr 4 '16
- Hydrated lime in concrete pavement construction. Eng & Contr 46:111 Ag 2 '16
- Inverted concrete pavement construction. il diag Eng & Contr 46:119 Ag 2 '16
- Low cost reinforced concrete pavement. il Eng & Contr 46:395 N 1 '16
- Michigan omits joints in concrete pavements. D. A. Thomas. Eng N 76:609-10 S 23 '16
- Monolithic concrete curb and pavement in Arcade, N. Y. E. J. Doyle. il diags Eng N 75:459-61 Mr 9 '16
- Organization and output of a gang laying concrete base for asphalt pavement. W. D. Jones. il Eng & Contr 46:18-19 J1 5 '16
- Paving a narrow, busy street; Van Buren street, Chicago. Eng N 75:172-3 Ja 27 '16
- Proportions of materials and consistency of concrete; committee report. Concrete 8:108-9 Mr '16
- Relative advantages of flat and crowned subgrades for concrete pavements. L. R. Ferguson. Good Roads n s 11:36 Ja 22 '16
- Satisfactory type of hillside pavement. diags Concrete 9:149 N '16
- Sioux City, Iowa, concrete pavements. il diags Eng N 76:165-9 J1 27 '16
- Sioux City tracks paved with concrete. il Elec Ry J 46:1132-3 D 4 '15
- Tar-coated concrete pavement in Ann Arbor, Mich. M. Osgood. Eng N 75:352-3 F 24 '16; Same. Eng & Contr 45:363-5 Ap 19 '16
- Two-course concrete paving on gumbo soil. E. L. Meyers. Eng N 76:706-7 O 12 '16
- Wear of concrete pavement due to improper construction. T. R. Agg and C. B. McCullough. Eng & Contr 46:109 Ag 2 '16

Pavements, Concrete—Continued

Wear of concrete pavements due to abrasion and scaling of mortar coat. T. R. Agg and C. B. McCullough. Eng & Contr 46:208-10 S 6 '16

See also Concrete; Curbs, Concrete; Pavements, Bituminous concrete; Roads, Concrete

Cost

Concrete paving a remedy for unsightly alleys at Carlisle, Pa. J. C. Hiteshow. il diag Eng Rec 73:703 My 27 '16

Methods and costs of construction of concrete pavements at Tonawanda, N. Y. A. F. Comstock. Eng & Contr 45:125-7 F 9 '16

Expansion joints

See Pavements—Expansion joints

Maintenance and repair

Maintenance and repair of concrete pavements. H. J. Kuelling. Eng N 74:1243 D 23 '15

Pavements, Experimental

Present condition of Second avenue, New York city, test pavements. H: W. Durham. Eng N 74:1255-7 D 30 '15

Method and cost of constructing concrete service test road at Philadelphia. W: H. Connel. Eng & Contr 45:390-3 Ap 26 '16; Same abr. Munic J 41:1-3 Jl 6 '16; Same abr. Concrete 9:99 S '16

Pavements, Granite

Causes of defects in some grouted granite block pavements. C. D. Pollock. Good Roads n s 11:101 F 26 '16

Construction of a grouted granite block pavement at Woonsocket, Rhode Island. A. L. Upham. il Good Roads n s 11:169 Ap 1 '16

Construction of granite block pavements in three cities. il Good roads n s 12:73-5 Ag 5 '16

Data on split granite block pavement at Portland, Me. Eng & Contr 46:108-9 Ag 2 '16

Difficult pavement construction in Brooklyn. il Munic J 40:889-91 Je 29 '16

Filler for granite block pavement. Eng & Contr 46:212 S 6 '16

Filler poured over blocks in granite pavement. Eng Rec 73:792 Je 17 '16

Filling joints in a granite block pavement on a road in Bergen county, New Jersey. H: W. Durham. il Good Roads n s 12:157-8 O 7 '16

Granite block on a county road. G. Ferguson. il Munic J 41:425-6 O 5 '16

Granite block pavement. Z. W. Carter. Eng & Contr 46:377-8 N 1 '16

Granite-block pavement for a residential street in Brooklyn, N. Y. il Eng N 76:491 S 14 '16

Granite: pavement construction in Brooklyn, N. Y. il Munic Eng 51:92-4 S '16

Granite paving blocks recut and relaid for \$1.59½ per yard. E. R. Dike. Elec Ry J 47:1192-3 Je 24 '16

Improved granite pavements; abstracts. H: W. Durham. Good Roads n s 11:12-14 Ja 1 '16; Munic Eng 50:67-8 F '16

Recent tendencies in stone block pavements. C: F. Knowlton. Good Roads n s 11:160-3 Ap 1 '16

Relaying granite block pavement in Portland. Munic J 41:356 S 21 '16

Removing old pavement and concrete base with steam shovel at Brooklyn, N. Y. il Eng & Contr 46:212 S 6 '16

Repaving in Cincinnati. J: S. Crandall. il Munic J 41:443-5 O 12 '16

Repaving of Broad street, Elizabeth, New Jersey, with grouted granite block. T: E. Collins. Good Roads n s 12:200 N 4 '16

Specification for four-inch granite paving blocks. Munic Eng 50:99-100 Mr '16

Steam shovel removes and loads old pavement and foundation. il Eng Rec 74:51-2 Jl 8 '16

Stone block for country highways. il Munic J 41:425 O 5 '16

Pavements, Macadamized. *See* Roads, Macadamized

Pavements, Steel

Sheet steel for paving. il Eng N 76:946 N 16 '16

Pavements, Stone

Construction details; statistics of pavements in the United States. Good Roads n s 12:50-1 Jl 1 '16

Methods of applying bituminous mastic fillers for block pavements. J: S. Crandell. il Eng & Contr 45:166-7 F 16 '16

Pitch-sand mastic filler. J: S. Crandell. il Munic J 40:271-2 F 24 '16

See also Pavements, Granite

Pavements, Wood

Are bleeding wood blocks really bleeding joints? E. R. Dutton. Eng N 76:737 O 19 '16

Canadian wood blocks for paving in Great Britain. Munic Eng 49:225 D '15

Committee of American wood preservers' association advocates mortar bed for wood blocks. Eng Rec 73:154 Ja 29 '16

Construction details; statistics of pavements in the United States. Good Roads n s 12:51 Jl 1 '16

Cresosoted wood block pavement. O. P. M. Goss. il Am For 22:105-6 F '16

Durability of cresosoted block pavements increased by modern methods of treatment. F. W. Cherrington. il Munic Eng 49:230-1 D '15

Important quality of wood for paving purposes. W. W. Crosby. Good Roads n s 11:170-1 Ap 1 '16

Kreolite Hex blocks on Chicago bridge. il Munic Eng 51:34 Jl '16

Oil specification for cresosoted wood block. H. von Schrenk. il Eng N 75:204-6 F 3 '16; Abstract. Munic Eng 49:233-4 D '15

Proper oil for cresosoting wood blocks for paving. P. C. Reilly. il Ry R 58:139-46 Ja 22 '16

Wood-block pavement is improved by traffic. il Eng N 75:696 Ap 13 '16

Wood block pavements. G: W. Tillson. Good Roads n s 11:208 My 6 '16

Wood blocks for street paving; their treatment and handling. il diag Munic Eng 50:183-4 My '16

See also Roads, Plank

Paving. *See* Pavements**Paving machinery**

Cincinnati traction paver. il Eng & Contr 46:309 O 4 '16

High drum Smith-Chicago mixer with water weighing device. il Munic J 40:496-7 Ap 6 '16; Eng & Contr 45:208 Mr 1 '16; Good Roads n s 11:138 Mr 4 '16

Koehring hot mixer. il Munic Eng 51:34+ Jl '16

Payment

Validity of agreements for payment of a part in full settlement. Dom Eng 77:184 N 11 '16

When consignee need not pay freight bill. E. J. Buckley. Metal Work 84:717 D 3 '15

When goods are not what you ordered. E. J. Buckley. Metal Work 85:717 My 26 '16

Payrolls

Field-office accounting; the payroll. B. L. Lathrop. Eng Rec 74:181-2 Ag 5 '16

Louisville company adopts novel method for paying employees. Elec R & W Elec'n 69:284-5 Ag 12 '16

Shall we pay by check or currency? H. K. Hollister. il Factory 17:27-30 Jl '16

Short cut in paying men. R. W. E. Sizer. Factory 17:674-5 D '16

Simplifying the paying of piece-workers. Textile World 51:835 Ja 22 '16

Unit time-card and pay-roll system. G: W. Hill. Elec R & W Elec'n 68:681-3 Ap 15 '16

Peace

Human nature and electron theory. Sci Am 114:658 Je 24 '16

Societies

See also Medical brotherhood for the furtherance of international morality

Peanut butter

Peanut butter machine. il Elec W 68:289 Ag 5 '16

Peanut oil

Electricity in cotton-seed and peanut mills. il Elec R & W Elec'n 68:796-800 My 6 '16

Peanuts

Cultivation of peanuts. il Sci Am S 82:249 O 14 '16

Pearls, Artificial

Making iridescent skins on artificial pearls. Sci Am S 82:7 Jl 1 '16

- Peary, Robert Edwin, 1856-**
Arctic controversies. *Sci Am* 114:296 Mr 18 '16
- Peat**
Bacterized peat; the problem in relation to plant nutrition. W. B. Bottomley. *Sci Am S* 82:267 O 21 '16
Peat burning furnace for locomotives; abstract. *diags Am Soc M E J* 38:354 Ap '16
Russia's power resources. *Sci Am S* 81:19 Ja 8 '16
Utilization of peat. *Sci Am S* 81:233 Ap 8 '16
Value of peat fuel, as compared with coal, for production of power; abstract. B. F. Haanel. *Am Soc M E J* 38:754-5 S '16
- Peat distillation**
Most economical method of disposing of peat converted into gaseous fuel in suitable gas producers. G. T. Morgan. *Am Gas Light J* 105:85 Ag 7 '16
New process for peat-distillation. C: A. Holder. *Metal Work* 84:807 D 24 '15; Same. *Am Gas Light J* 104:29 Ja 10 '16
Peat gas. *Am Gas Light J* 104:86 F 7 '16
- Peat moss.** See Sphagnum moss
- Peaucellier motion.** See Straight line motion
- Pebbles**
Imported and domestic pebbles for grinding. F. J. Katz. *Concrete* 9:sup29-30 S '16
- Pegmatite**
Zircon-bearing pegmatites in Virginia. T: L. Watson. map *Am Inst Min E Bul* 115:1237-43 Jl '16
- Pellagra**
Cause and cure of pellagra. *Sci Am S* 81:11 Ja 1 '16
Vitamin solution of the pellagra problem. E: J. Wood. *Sci Am S* 82:43 Jl 15 '16
- Pelton clip**
Improving on the cotter pin. *diags Automobile* 34:673 Ap 13 '16
- Pennichuck water co., Nashua, N. H.**
Profit in water-works forestry at Nashua, N. H. il map *Eng N* 76:472-4 S 7 '16
- Pennsylvania.** See Roads—Pennsylvania
- Pennsylvania electric association**
9th annual convention, Eaglesmere, Pa., Sept. 5-8. Elec R & W Elec N 69:501-3 S 16 '16; Elec W 68:558 S 16 '16
- Pennsylvania gas association**
Presidential address. B. F. Cresson. *Am Gas Light J* 104:257 Ap 24 '16
- Pennsylvania railroad**
Annual report, 1915. *Ry Age* 60:419-20 Mr 3 '16
Daylight lamp signals on the Pennsylvania railroad. *diags Engineer* 122:195-6 S 1 '16
Efficiency testing on the Pennsylvania. *Ry Age* 61:279-83, 312-13, 330-2 Ag 18-25 '16
Forty-fourth annual track inspection of the Pennsylvania. il *Ry Age* 61:639-41 O 13 '16
Great public trust. A. J. County. *Ry Age* 59:1100 D 10 '15
How the Pennsylvania railroad handles its scrap. E. L. Shaner. il *Iron Tr R* 59:363-8 Ag 24 '16
Mutual beneficial association on the Pennsylvania. N. F. Dougherty. *Ry Age* 59:1093-5 D 10 '15
New 41-mile line in Indiana for the Pennsylvania R. R. map *Eng & Contr* 46:258 S 20 '16
Pennsylvania freight terminal at Chicago. il plans *Eng Rec* 74:594-5 N 11 '16
Position light signals on the Pennsylvania. il *Ry Age* 61:117-19 Jl 21 '16
Position-light signals on the Pennsylvania R. R. il *diags Eng N* 76:877-8 N 9 '16
- Pennsylvania street railway association**
Spring meeting, Lancaster, May 9-10. Elec Ry J 47:904-9 My 13 '16
Winter meeting, Scranton, Pa., Dec. 14-15. Elec Ry J 46:1205-13 D 18 '15
- Pennsylvania. University**
Additions to the University museum, Philadelphia: views and plans. *Brickb* 25:133, pl 65-8 My '16
- Pens**
How steel pens are manufactured. E. C. Kreutzberg. il *Iron Tr R* 58:57-61+ Ja 6 '16
Pen that permits of writing with the mouth. A. Gradenwitz. il *Sci Am* 114:533+ My 20 '16
- Pensions**
Crompton & Knowles loom works adopts old age pensions. *Textile World* 51:3188 Jl 15 '16
U. S. steel pension fund. *Iron Age* 97:312 F 3 '16
See also Civil service pensions
- Pentane lamps**
Flame standards in photometry. E. B. Rosa and E. C. Crittenden. *U S Bur Stand Bul* 10:584-95 Jl '14; Same. *Sci Am S* 81:223-4 Ap 1 '16
- Pepsin**
Pepsin—a résumé of tests. H. T. Graber. *J Ind & Eng Chem* 8:911 O '16
- Peptization**
Colloidal arsenates and phosphates of iron. H. N. Holmes and R. E. Rindfusz. *Am Chem Soc J* 38:1970-82 O '16
- Peptone**
Peptone as an addition agent in stannous ammonium oxalate baths. F. C. Mathers and B. W. Cockrum. *Metal Ind n s* 14:252-3 Je '16
- Perceric oxide**
Derivatives of perceric oxide. C. C. Meloche. *diag Am Chem Soc J* 37:2338-46, 2645-52 O, D '15
- Pere Marquette railroad**
Report, 1916. map *Ry Age* 61:879-81 N 17 '16
- Perfumery**
Manufacture of synthetic perfumes. *Sci Am S* 81:272 Ap 22 '16
- Periodates**
Differential iodimetry; determination of periodates, iodates, bromates and chlorates in the presence of each other. O. L. Barnebey. *Am Chem Soc J* 38:330-41 F '16
Researches on organic periodides; periodides of antipyrine, iodoantipyrine and pyrimidone. W. O. Emery and S. Palkin. *Am Chem Soc J* 38:2166-81 O '16
- Periodic law**
Periodic system and the properties of the elements. W: D. Harkins and R. E. Hall. *diags Am Chem Soc J* 38:169-221 F '16
Results of recent investigations. S. Dushman. *Gen Elec R* 18:614-21 Jl '15; Same. *Sci Am S* 81:44-6 Ja 15 '16
- Periodicals**
See also Engineering periodicals; House organs; Newspapers; Trade papers
- Periodides**
Researches on organic periodides; periodides of phenacetin, methacetin and triphenin. W. O. Emery. *Am Chem Soc J* 38:140-50 Ja '16
- Periscope**
Periscope of the submarine. *Sci Am S* 81:135 F 26 '16
Periscope that enables the towerman to see around railroad bend. il *Sci Am* 115:127 Ag 5 '16
- Perishable freight.** See Freight, Perishable
- Perkin medal**
Perkin medal award to L. H. Baekeland; addresses. *J Ind & Eng Chem* 8:177-90 F '16
Presentation of Perkin medal to L. H. Baekeland. C: F. Chandler; L. H. Baekeland. *Met & Chem Eng* 14:147-58 F 1 '16
- Permeameters**
Permeameter for straight bars. R. Beattie. *diag Elec W* 67:778-9 Ap 1 '16
- Permutit process**
Panama-Pacific exposition. F. R. Low. il *Pow-er* 42:784-6 D 7 '15
Softening water with Permutit. S. B. Applebaum. il plan *Power* 43:198-9 F 8 '16
Water softening by Permutit. *Am Soc M E J* 38:191 F '16
- Perpetual motion**
Far from perpetual motion. F. H. Low. *diags Power* 44:732 N 21 '16
Mediæval machinery. il *Sci Am* 115:64 Jl 15 '16
Perpetual motion; the one phenomenon which is universal and constant. C: E. Benham. *Sci Am S* 82:130-1 Ag 26 '16
Some perpetual motions. *diags Power* 44:757-8 N 28 '16

Peru

Commerce

- Markets for machinery and machine tools in Peru, Bolivia, and Chile. J. A. Massel. U S Bur For & Dom Com 118:1-32, 86-8 '16
- Peruvian markets for American hardware. il U S Bur For & Dom Com misc ser 39:1-64 '16

Commercial policy

- Report on trade and tariffs. U S Fed Tr Comm p 205-25 '16

Industries and resources

- Cerro de Pasco district, Peru. J. T. Singewald, jr. and B. L. Miller. il map Eng & Min J 101:1015-18 Je 10 '16
- Cotton of ancient Peru. M. D. Crawford. diag Textile World 51:2103-4 Ap 29 '16
- Metallurgical progress in Peru. M. Fort. Met & Chem Eng 14:308 Mr 15 '16
- Mining industry of Peru. J. T. Singewald, jr. and B. L. Miller. il map Eng & Min J 101: 845-50 My 13 '16

See also Copper mines and mining—Peru; Geology—Peru; Mines and mineral resources—Peru

Perugia

- Assisi and Perugia by chance acquaintance. W. R. B. Willcox. il Am Inst Arch J 3:518-27 D '15

Peruzzi, Baldassare, 1491-1536

Portrait. Brickb 25:52a Mr '16

Petrography. See Rocks

Petroleum

- Conservation of the oil and gas resources of the Americas. R. Arnold. Econ Geol 11:203-22, 299-326 Ap-Je '16
- Density and thermal expansion of American petroleum oils. H. W. Bearce and E. L. Pfeffer. diags U S Bur Stand Tech Pa 77:1-26 '16
- Diastrophic theory; study of the mechanics of oil and gas accumulation in commercial deposits. M. R. Daly. diags Am Inst Min E Bul 115:1137-57 Jl '16; Discussion. 120:2204-11 D '16
- Emulsified or cut petroleum. C. K. Francis. il diag J Ind & Eng Chem 8:682-4 Ag '16
- Future gasoline supply from shale. Sci Am 114:429 Ap 22 '16
- Gilsonite and grahamite; the result of the metamorphism of petroleum under a particular environment. C. Richardson. J Ind & Eng Chem 8:493-4 Je '16; Same. Sci Am S 82:310 N 11 '16
- History of the American automobile industry. D. Beecroft. Automobile 34:679, 724-5, 772-3 Ap 13-27 '16
- Influence of the movement in shales on the area of oil production. R. A. Conkling. Am Inst Min E Bul 119:1969-72 N '16
- Oils and motor fuels; discussion. J Ind & Eng Chem 8:967-8 O '16
- Origin of petroleum and asphalt. R. Richardson. J Ind & Eng Chem 8:4 Ja '16
- Petroleum producing. A. G. Heggem. Sibley J 30:251-4 My '16
- Production of oil from coal. il diags Engineer 120:598-9 D 24 '15
- Relation of the quality of oil to deformation. R. H. Johnson. Econ Geol 10:676-8 N '15
- Relations of the chemical composition of petroleum to its genesis and geologic occurrence. C. F. Mabery. Econ Geol 11:511-27 Ag '16
- Underground wastes in oil and gas fields and methods of prevention. W. F. McMurray and J. O. Lewis. il U S Bur Mines Tech Pa 130: 1-27 '16
- United States standard tables for petroleum oils. diags U S Bur Stand Circ 57:1-64 '16; Excerpt. Power 44:278 Ag 22 '16
- Viscosity of oils in relation to the rate of flow through pipes; abstract. R. T. Glazebrook, W. F. Higgins and J. R. Pannell. Am Soc M E J 38:593 Jl '16
- See also Coal-tar products; Gas; Gas, Oil; Gasoline; Kerosene; Oil flow; Oil lands; Oil shales; Oil storage; Petroleum pipe lines

Distillation

- Construction and operation of a single-tube cracking furnace for making gasoline. C. P. Bowie. il 10 pls U S Bur Mines Tech Pa 161: 1-15 '16
- Cracking and distillation of petroleum under pressure. B. T. Brooks. J Fr Inst 180:653-72 D '15
- Cracking of paraffin base oils; the time factor and the temperature factor under pressure. G. Egloff, T. Twomey and R. J. Moore. Met & Chem Eng 15:523-9 N 1 '16
- Effect of aluminium chloride upon a naphthene base oil in the formation of gasoline, unsaturated and aromatic hydrocarbons. G. Egloff and R. J. Moore. Met & Chem Eng 15:340-50 S 15 '16
- Effect of temperature on the formation of olefins from petroleum at atmospheric pressure. G. Egloff and T. J. Twomey. Met & Chem Eng 14:247-50 Mr 1 '16
- Equilibrium relations among aromatic hydrocarbons produced by cracking petroleum. W. F. Rittman and T. J. Twomey. J Ind & Eng Chem 8:20-2 Ja '16
- Experiments on the production of gasoline from hydrocarbon oils of high boiling points. E. L. Davies. diags J Ind & Eng Chem 8: 114-18 F '16
- Formation of aromatic compounds from the cracking of a gas oil. G. Egloff and T. J. Twomey. Met & Chem Eng 15:15-18 Jl 1 '16
- Gasoline and other volatile hydrocarbons from petroleum residues, patent issued to C. S. Palmer. Met & Chem Eng 15:47 Jl 1 '16
- Gasoline from heavier petroleum oils. C. Ellis and A. A. Wells. J Ind & Eng Chem 7: 1029-33 D '15
- Hope in cracking process. W. F. Rittman. Automobile 34:558-9 Mr 23 '16
- Improvement of high boiling petroleum oils, and the manufacture of gasoline as a by-product therefrom, by the action of aluminium chloride. A. M. McAfee. J Ind & Eng Chem 7:737-41 S '15; Same. Met & Chem Eng 13:592-7 S 15 '15; Same. Sci Am S 81: 50-1, 74 Ja 22-29 '16; Same abr. Am Gas Light J 103:293-5 + N 8 '15; Abstract. Eng N 74:532 S 16 '15
- Manufacture of gasoline and benzene-toluene from petroleum and other hydrocarbons. W. F. Rittman and others. bibliog il diags U S Bur Mines Bul 114:1-268 '16; Abstract. Met & Chem Eng 14:269-78 Mr 1 '16; Abstract. J Ind & Eng Chem 8:351-61 Ap '16
- Presence of benzene homologs in the high boiling distillates of petroleum. B. T. Brooks and I. W. Humphrey. Am Chem Soc J 38:393-400 F '16
- Thermal and pressure decomposition of a naphthene base oil in the gas phase. G. Egloff, T. J. Twomey and R. J. Moore. Met & Chem Eng 15:387-92 O 1 '16
- Thermal reactions of aromatic hydrocarbons in the vapor phase. W. F. Rittman, O. Byron and G. Egloff. J Ind & Eng Chem 7: 1019-24 D '15
- Utilization of aromatic hydrocarbons derived from cracked petroleum. W. F. Rittman. J Ind & Eng Chem 7:1014-19 D '15

Bibliography

- Production of gasoline and aromatic hydrocarbons from petroleum. M. S. Howard. U S Bur Mines Bul 114:235-55 '16

Laws and regulations

- Laws and regulations relating to operation of oil and gas lands in Oklahoma. J. O. Lewis and W. F. McMurray. U S Bur Mines Bul 134:67-79 '16

Pumping

- Electric operation of oil properties. L. R. W. Allison. il Elec W 67:261 Ja 29 '16
- Motor equipments for the recovery of petroleum. W. G. Taylor. il diag Am Inst E E Pro 35:766-72 Je '16; Same. Elec R & W Elec N 69:233-4 Ag 5 '16; Discussion. Am Inst E E Pro 35:1492-3 O '16
- Problems connected with the recovery of petroleum from unconsolidated sands. W. H. Kobbé. il Am Inst Min E Bul 120:2271-6 D '16

Petroleum—Continued

Savings effected by pumping oil wells by electricity. Elec R & W Elec'n 68:552 My 13 '16

Transportation

See Petroleum pipe lines; Tank cars; Tank ships

Well boring

Control of petroleum and natural gas wells. A. G. Heggem. il diags Am Inst Min E Bul 109:151-63 Ja '16; Excerpts. Iron Age 97:254 Ja 27 '16

Evolution of drilling rigs. R. B. Woodworth. il diags Am Inst Min E Bul 107:2247-312 N '15; Discussion. 113:953-9 My '16

Improved methods of deep drilling in the Coalinga oil field, California. M. E. Lombardi. il diags Am Inst Min E Bul 98:209-15 F '15; Excerpts. Eng & Contr 46:61-2 Jl 19 '16

Motor equipments for the recovery of petroleum. W. G. Taylor. il diags Am Inst E E Pro 35:760-6 Je '16; Same. Elec R & W Elec'n 69:233-4 Ag 5 '16

Problems connected with the recovery of petroleum from unconsolidated sands. W. H. Kobbé. il Am Inst Min E Bul 120:2253-67 D '16

Two electric motors in one for oil wells. I. B. Smith. il Sci Am 115:86 Jl 22 '16

Underground wastes in oil and gas fields and methods of prevention. W. F. McMurray and J. O. Lewis. il U S Bur Mines Tech Pa 130:20-7 '16

Use of mud-laden fluid in oil and gas wells. J. O. Lewis and W. F. McMurray. il diags U S Bur Mines Bul 134:1-86 '16

California

California gasoline industry. W. R. Hamilton. Am Inst Min E Bul 114:1073-7 Je '16

Canada

Conservation of the oil and gas resources of the Americas. R. Arnold. Econ Geol 11:206-11 Ap '16

Chile

New oil fields in Chile. Sci Am 115:460 N 18 '16

Ecuador

Ecuador develops oil industry. Eng & Min J 102:294 Ag 12 '16

Mexico

Conservation of the oil and gas resources of the Americas. R. Arnold. Econ Geol 11:212-22 Ap '16

Effect of igneous intrusions on the accumulation of oil in the Tampico-Tuxpam region, Mexico. E. De Golyer. Econ Geol 10:651-62 N '15

Newfoundland

Conservation of the oil and gas resources of the Americas. R. Arnold. Econ Geol 11:206 Ap '16

Newfoundland oil shales. Eng & Min J 101:436 Mr 4 '16

Philippine Islands

Occurrence of petroleum in the Philippines. W. E. Pratt. map Econ Geol 11:246-65 Ap '16

Russia

Baku oil fields; discussion of paper by A. Adiassevich. L. G. Huntley. Econ Geol 11:279-83 Ap '16

South America

Conservation of the oil and gas resources of the Americas. R. Arnold. Econ Geol 11:303-19 Je '16

Turkey

Fuel in Turkey. L. Dominian. Am Inst Min E Bul 114:1022-30 Je '16

United States

Census bureau's summary for the petroleum refining industry for 1914. J Ind & Eng Chem 8:282 Mr '16

Fight for naval fuel. J. E. Jenks. Sci Am 115:61 Jl 15 '16

Large petroleum production for 1915. Am Gas Light J 104:27-9 Ja 10 '16

Petroleum production large; estimates of United States geological survey. Sibley J 30:148-51 Ja '16

Petroleum refining in the United States—comparative statistics; 1914 and 1909. Horseless Age 37:143 F 15 '16

Petroleum resources of the United States. R. Arnold. Econ Geol 10:695-712 D '15; Excerpt. Eng & Min J 101:468 Mr 11 '16

West Virginia

Possibility of deep sand oil and gas in the Appalachian geo-syncline of West Virginia. D. B. Reger. map Am Inst Min E Bul 117:1709-24 S '16

Petroleum, Synthetic

Gasoline from synthetic crude oil. W. O. Snelling. Am Inst Min E Bul 100:695-704 Ap '15; Same. Sci Am S 79:189-91 Mr 20 '15; Same cond. Sci Am 112:266-7 Mr 20 '15; Abstract. Met & Chem Eng 13:180-1 Mr '15; Discussion. Am Inst Min E Bul 101:1163-9; 109:173-6 My '15, Ja '16

Petroleum as fuel

Ajax oil or gas forge. il Eng & Min J 101:729 Ap 22 '16

Case low-pressure oil-burning forge. il Eng N 75:344 F 17 '16; Coal Age 9:501 Mr 18 '16

Coal more economical than oil. J. Ross. Power 43:723 My 23 '16

Coming of the motor plough. il diags Engineer 120:630-1 D 31 '15

Comparative costs of gas and fuel oil in heating japaning ovens. E. F. Lake. Mach 22:1075-6 Ag '16

Contractors' locomotive with oil-fired boiler. il diags Engineer 120:486 N 19 '15

Cost of coal and oil as fuel. P. Barker. chart Power 43:765-7 My 30 '16; Same cond. Eng & Min J 102:93-4 Jl 8 '16

Crude oil as fuel in low pressure heating systems. H. S. Haley. il diags Am Soc Heat & V E 21:410-24 '15; Same. Dom Eng 70:104-6, 139-41 Ja 23-30 '15

Crude oil in the cupola. B. Stoughton. Iron Age 97:376 F 10 '16

Electricity in brick manufacturing plants. il Elec R & W Elec'n 68:60-4 Ja 8 '16

Experiments in natural-draft oil burning on the U. S. S. Fulton; abstract. L. R. Ford. diags Am Soc M E J 38:830-1 O '16

Fuel oil installation for small shops. plan Ry Mech Eng 90:590 N '16

Fuel oil installations and equipment, Florida East Coast Ry. diags plan Ry 58:903-6 Je 24 '16; Abstract. Am Soc M E J 38:666 Ag '16

Fuel oil versus coal. R. E. Newcomb. Power 44:282-4 Ag 22 '16

Heating boilers for electric locomotives. il diags Elec Ry J 47:1080-4 Je 10 '16

Heating Horticultural palace at exposition. il plans Metal Work 85:158-9 Ja 28 '16

How crude oil is used for cupola melting. B. Stoughton. diags Foundry 44:303-4 Ag '16; Excerpts. Iron Age 97:232 Ja 20 '16

How oil burners help boilers over peak loads. il diags Elec W 68:758-9 O 14 '16

Jobbing foundry installs 2-ton furnace. il diags Iron Age 98:510-13 S 7 '16

Kerosene fire pot. il Metal Work 84:782 D 17 '15

Large reheating furnace at Bates expanded steel truss co., East Chicago. il diags Iron Tr R 58:929 Ap 27 '16

Leyner oil furnace with preheating feature. il Eng & Contr 45:109-10 F 2 '16

Low-lift pumping plant uses distillate fuel. B. S. Nelson. Eng Rec 74:437 O 7 '16

New fuel oil driven air compressor. diags Eng & Contr 45:159 F 16 '16

Oil burners for mill power plants. il Textile World 51:709, 711, 713 Ja 15 '16

Oil-burning blacksmith forge. F. G. Lister. diags Ry Age (Mech ed) 89:633-4 D '15

Oil burning boilers in textile mills. Textile World 51:57+ D 4 '15

Oil-burning preheating furnace. il Coal Age 9:677 Ap 15 '16

Oil fuel. E. H. Peabody. Power 44:208 Ag 8 '16

Relative costs of coal and of oil fuels. F. C. Fearing. Power 42:826-7 D 14 '15; Same. Eng & Min J 101:555-6 Mr 25 '16

Petroleum as fuel—Continued

- Report of station operating committee of the National district heating association; oil as fuel. Power 44:30-2 J1 4 '16
- Superheaters and oil fuel for Indian locomotives. H. R. Wilson. Ry R 58:63-4 Ja 8 '16
- Test of Ward watertube boiler. S. M. Robinson. Il Int Marine Eng 21:330-3 J1 '16
- Three types of oil-fired boiler installations in Arizona. Il Eng & Min J 102:787-8 O 28 '16
- Ventilated front column in oil-burning boiler. C. V. Walker. diag Power 43:630-1 My 2 '16
- See also Gas and oil engines; Kerosene; Oil burners

Petroleum engines. See Gas and oil engines**Petroleum industry**

- Greatest petroleum production. Eng & Min J 102:419 S 2 '16
- Industrial dependence on petroleum. J. D. Northrop. Am Gas Light J 103:373-5 D 13 '15
- Interesting phases of petroleum industry. W. C. Robinson. Textile World 51:2937-8 Je 24 '16
- New York's gas oil business. Am Gas Light J 104:154 Mr 6 '16
- Production of petroleum. Eng & Min J 101:79-80 Ja 8 '16
- Valuation of oil properties. D. Hager. Eng & Min J 101:930-2 My 27 '16

Petroleum pipe lines

- Federal trade commission's report on pipe lines. Ry R 58:343-4 Mr 4 '16
- Influence of viscosity in pumping crude oil. A. L. Collins. Eng N 76:22-4 J1 6 '16
- Oil pipe line across the Atlantic ocean. Sci Am S 82:341 N 25 '16
- Pumping California crude oil. Am Gas Light J 104:122 F 21 '16
- Report on pipe-line transportation of petroleum. U S Fed Tr Comm 467p il 2 maps F 28 '16

Petrology. See Graphic intergrowths; Rocks**Petromortis**

- Carbon monoxide a poisonous gas. Automobile 34:466-7 Mr 9 '16
- Contamination of air by automobile exhausts. G. L. Apfelbach. Heat & Ven 13:48-9 F '16
- Gasoline motors in mines. Coal Age 10:551-3 S 30 '16
- Petromortis experiences. C. F. Smith. Automobile 34:596 Mr 30 '16

Phase advancers

- Modern methods of correcting power factor. diag Engineer 122:25-6 J1 14 '16

Phase boundaries. Physiological importance of. W. M. Bayliss. Sci Am S 81:18-19, 42 Ja 8-15 '16**Phase rule and equilibrium**

- Suggestion concerning the statement of the phase rule. T. W. Richards. Am Chem Soc J 38:983-9 My '16

Phelps, Dodge & co.

- Annual report for 1915. Eng & Min J 101:651 Ap 8 '16

Phenol. See Carbolic acid**Phenology**

- Border science between meteorology and biology. Sci Am 114:192 F 19 '16

Phenols

- Addition compounds of phenols with organic acids. J. Kendall. Am Chem Soc J 38:1309-23 J1 '16
- Catalytic decomposition of certain phenol silver salts. W. H. Hunter, A. O. Olson and E. A. Daniels. Am Chem Soc J 38:1761-71 S '16

See also Resorcinol

Phenoltetrachlorophthalein

- Nitration products of phenoltetrachlorophthalein and some of their derivatives. W. R. Orndorff and J. J. Kennedy. Am Chem Soc J 38:2486-503 N '16

Phenyl esters

- Phenyl esters of oxalic acid. R. Adams and H. Gilman. Am Chem Soc J 37:2716-20 D '15

Phenylethylamine

- Researches on amines; the formation of Schiff bases from β -phenylethylamine and their reduction to alkyl derivatives of this amine. N. A. Shepard and A. A. Ticknor. Am Chem Soc J 38:381-7 F '16

Phenylhydrazones

- Condensation of aldehyde diacetates and of phenylhydrazones with 2-thiohydantoin. B. H. Nicolet. Am Chem Soc J 37:2753-6 D '15

Philadelphia, Pennsylvania**Architecture**

- Additions to the University museum; views and plans. Brickb 25:133, pl 65-8 My '16
- Penn mutual building. Philadelphia. H. D. Eberlein. Il Arch Rec 39:122-31 F '16

Bridges

- Bensalem avenue concrete arch bridge. J. Jones. Il diag Eng & Contr 46:91-3 J1 26 '16; Same cond. Eng Rec 74:504-5 O 21 '16

Bureau of highways

- Clean streets in Philadelphia. W: H. Connell. Il Munic Eng 50:71-3 F '16
- Cleaning up after snowstorms in Philadelphia. W: H. Connell. Il Eng N 75:221-4 F 3 '16
- Millions for paving. Il map Eng Rec 72:714-17 D 11 '15
- Planning boards for Philadelphia highway bureau. Munic J 41:38-9 J1 13 '16
- Regular inspection of sewers part of maintenance. W: H. Connell. Eng N 76:17-18 J1 6 '16
- Salient features of highway work in Philadelphia during 1915. Il Good Roads n s 11:197-200 My 6 '16
- Use of the snow alarm in Philadelphia. W: H. Connell. Good Roads n s 11:184-5 Ap 15 '16

Electrical bureau

- Improvements in Philadelphia's fire alarm system. Il Munic J 40:71-3 Ja 20 '16

Libraries

- Haddington branch, the Free library of Philadelphia. C. M. Price. Il diag plans Arch Rec 40:44-62 J1 '16

Parks

- Noted zoological parks; the gardens of the Zoological society of Philadelphia. R. W. Shufeldt. Il Sci Am S 81:8-9 Ja 1 '16
- Pastorius park, and its residential development. H. D. Eberlein. Il plans Arch Rec 39:24-39 Ja '16

Railroads

- Construction and operating details of Philadelphia electrification. G: Gibbs. Elec Ry J 47:203-5 Ja 29 '16
- Operation of the P. R. R. Philadelphia-Paoli electrification. F. G. Grimshaw. Il Elec Ry J 47:680-4 Ap 8 '16

Rapid transit

- Progress toward rapid transit in Philadelphia. Eng N 75:720-1 Ap 13 '16
- Rapid transit progress in Philadelphia. diag Elec Ry J 48:1016-17 N 11 '16
- Self-supporting rapid transit line. W: S. Twining. Eng Rec 73:538-9 Ap 22 '16
- Solving the labor problem in Philadelphia. T: Conway, jr. Elec Ry J 48:968-72 N 4 '16

Sewerage

- Sewage disposal problem confronting the city of Philadelphia. W. L. Stevenson. diag map Boston Soc C E J 3:345-62 S '16; Excerpt (Intercepting device for Frankford creek high level sewer). Eng & Contr 46:324-5 O 11 '16

Streets

- City planning on an exceptionally large scale is meeting with public approval at Philadelphia. Il plans Eng Rec 73:344-8 Mr 11 '16

See also Philadelphia—Bureau of highways

Water supply

- Water meters for Philadelphia. C. E. Davis. Eng N 76:720-1 O 12 '16

Philadelphia, Pennsylvania—*Continued***Wharves**

Marine terminal improvements at port of Philadelphia, map Int Marine Eng 21:437-8 O '16

Terminal railway and new piers at port of Philadelphia, map Eng N 76:260-1 Ag 10 '16

Philadelphia civic exposition

Unique piping systems developed in connection with the gas illumination of the Philadelphia civic exposition, C. S. Snyder and F. H. Gilpin, il plan Am Gas Light J 105: 195-6 S 25 '16

Philippine Islands

City planning at Cebu, R. C. Hardman, plans Eng N 75:882-3 My 11 '16

See also Roads—Philippine Islands

Industries and resources

Address at meeting of American iron and steel institute, E. H. Gary, Iron Age 98:993-6 N 2 '16; Same, Iron Tr R 59:905-8 N 2 '16

Coal in the Philippines, W. E. Pratt, il Coal Age 9:491-7 Mr 18 '16

Iron ores of the Philippine Islands, W. E. Pratt, maps Am Inst Min E Bul 110:247-62 F '16; Same cond. Iron Tr R 59:631-4 S 28 '16

Primitive iron smelting in the Philippine Islands, J. F. Springer, il Iron Tr R 58:77-80 Ja 6 '16

Timbers of the Philippines, Sci Am S 82:142-3 Ag 26 '16

See also Petroleum—Philippine Islands

Public works

Aërial tramway as substitute for a bridge, F. T. James, il Eng N 76:12-13 JI 6 '16

Building a front door on the Philippines, M. Woolley, il Sci Am 115:431+ N 11 '16

Railroads

See Railroads—Philippine Islands

Social life and customs

Filipino toys, A. R. Brane, il Sci Am S 82:4-5 JI 1 '16

Phonograph

Home-made phonograph possessing good tonal qualities, il Sci Am 114:103 Ja 22 '16

Phonographic writing machine

True nature of speech; with application to a voice-operated phonographic alphabet writing machine, J. B. Flowers, il diags Am Inst E E Pro 35:183-201 F '16; Abstract, Eng M 50:937 Mr '16; Discussion, Am Inst E E Pro 35:1083-99 JI '16

Voice-controlled writing machine, il diags Sci Am 114:174 F 12 '16

Phosphates

Acid soils and the effect of acid phosphate and other fertilizers upon them, S. D. Conner, J Ind & Eng Chem 8:35-40 Ja '16

Conservation of phosphate rock in the United States, W. C. Phalen, il map Am Inst Min E Bul 119:1901-34 N '16

Making basic phosphate fertilizer, Ensley, Ala., il Iron Tr R 59:22-5 JI 6 '16

Use of low-grade phosphates, J. A. Barr, Am Inst Min E Bul 110:243-5 F '16; Same, Met & Chem Eng 14:202 F 15 '16

See also Fertilizers and manures

Phosphor bronze. *See* Bronze**Phosphorescence**

Comparison of the intensity of oxidation in luminous and non-luminous insects, W. E. Burge, J Fr Inst 182:263-4 Ag '16

Experiments on the nature of the photogenic substance in the firefly, E. N. Harvey, diag Am Chem Soc J 37:396-401 F '15; Same, Sci Am S 82:157 S 2 '16

Production of light by animals, U. Dahlgren, il J Fr Inst 180:513-37, 711-27; 181:109-25, 243-61, 377-400, 525-56, 659-96, 805-43 N '15-Je '16

Radium and other luminous compounds; notes on a lecture by F. H. Glew, Illum Engr 9:249-50 Ag '16

Phosphoric acid

Method of extraction as affecting the determination of phosphoric acid in soils, H. Hale and W. L. Hartley, J Ind & Eng Chem 8: 1028-9 N '16

Phosphoric acid in starch, J. H. Northrop and J. M. Nelson, Am Chem Soc J 38:472-9 F '16

Proposed new method for citrate-insoluble phosphoric acid, C. H. Hunt, J Ind & Eng Chem 8:251-3 Mr '16

Use of the Cottrell precipitator in recovering phosphoric acid; abstract, W. H. Ross, J. N. Carothers and A. R. Merz, Met & Chem Eng 13:380 O 1 '16

Phosphoroscope

New form of phosphoroscope; abstract, E. L. Nichols and H. L. Howes, diags Elec W 68: 140 JI 15 '16

Phosphorus

Black phosphorus, P. W. Bridgman, Am Chem Soc J 38:609-12 Mr '16

Blackening of yellow phosphorus, W. N. Rae, Am Chem Soc J 38:887-8 Ap '16

Comparison of methods for the determination of soil phosphorus, W. O. Robinson, J Ind & Eng Chem 8:148-51 F '16

Determination of phosphorus in plant materials, J. W. Christie, J Ind & Eng Chem 8: 511 Je '16

Introducing phosphorus into cast iron, G. S. Evans, Foundry 44:315-16 Ag '16

Reagents for use in gas analysis; phosphorus in solution, R. P. Anderson and W. Biederman, J Ind & Eng Chem 8:135-6 F '16

See also Phosphoric acid; Phosphates

Photochemistry

Flame arc in chemical manufacture, W. R. Mott and C. W. Bedford, diags J Ind & Eng Chem 8:1029-35 N '16

Photochemistry, H. A. Curtis, Met & Chem Eng 14:183-6 F 15 '16; Same, Sci Am S 81: 181, 214-15 Mr 18, Ap 1 '16

See also Photographic chemistry

Photoelectric cells

Photoelectric cells; abstract, J. Kunz and J. Stebbins, diag Elec W 67:275 Ja 29 '16

Photoengravers

Photoengravers and the union, Inland Ptr 58: 195-7 N '16

Photoengravers' rights and wrongs, Inland Ptr 58:49-51 O '16

Photo-engraving

Prices for engravings, Inland Ptr 57:482-3 JI '16

Process engraving, S. H. Horgan, *See* monthly numbers of the Inland printer

Photographic chemistry

Proper mixing of chemical solutions used in photography, E. Senior, Sci Am S 81:186 Mr 18 '16

See also Photochemistry

Photographic paper

Art of coating paper, il diags Engineer 122: 249-50, 273-4 S 22-29 '16

Perkin medal award to L. H. Baekeland; presentation address, C. F. Chandler, J Ind & Eng Chem 8:178-9 F '16

Presentation of Perkin medal to L. H. Baekeland, C. F. Chandler, L. H. Baekeland, Met & Chem Eng 14:148-9, 152-4 F 1 '16

Photography

Artificial illuminants for use in practical photography; with discussion, C. E. K. Mees, Illum Eng Soc 10:947-62 no 9 '15

Gas light in photography, R. F. Pierce, il diags plan Am Gas Light J 103:385-8 D 20 '15

Leaf photography, il Sci Am S 81:277 Ap 29 '16

Lighting of a modern photographic studio, V. A. Clarke, il diags Elec R & W Elec'n 68:1024-6 Je 3 '16

Mazda lamp in photography, W. E. Brewster, il diags Gen Elec R 19:186-94 Mr '16

Photographing colors, il Sci Am S 82:61 JI 22 '16

Photographs in relief, E. Constet, J Fr Inst 181:722-3 My '16

Photography with a horse-shoe magnet, F. F. Mace, il Sci Am 115:411 N 4 '16

Photography—Continued

- Proportional reducers; abstract. K. Huse and A. H. Nietz. J Fr Inst 182:532-3 O '16
- Relative photographic and visual efficiencies of illuminants. L. A. Jones, M. B. Hodgson and K. Huse. Il Illum Eng Soc 10:363-86 no 9 '15
- Secret photographs. Sci Am S 82:208 S 23 '16
- Shadow pictures by parallel rays. P. Lindner. Il Sci Am S 82:68 JI 29 '16
- Stripping of gelatine dry plates. S. M. Furnald. J Fr Inst 181:141 Ja '16
- Use of indirect illumination for portrait photography. diag Elec W 67:550 Mr 4 '16
- See also Animals, Photographs and photography of; Astronomical photography; Color photography; Lenses; Moving pictures; Photo-engraving; Photographic chemistry; Photographic paper; Photomicrography; Radiography

Apparatus and supplies

- Making a motion picture of a one hundredth second shutter exposure. Il Sci Am 114:589 Je 3 '16
- New enlarging and projection apparatus. Il Sci Am S 81:357 Je 3 '16
- Photographing of high velocity phenomena. W. A. Hyde. Il diags Sci Am 115:195 Ag 26 '16
- Precision shutter testing instrument. P. G. Nutting. J Fr Inst 181:701-2 My '16

Enlarging

- Enlarging pictures without a lens; abstracts. A. J. Lotka. Il diag Sci Am 115:14 JI 1 '16; Met & Chem Eng 15:269-70 S 1 '16
- Photographic enlargements. Sci Am S 82:144 Ag 26 '16

Reproduction of plans, drawings, etc.

- Fabric for photoprints of original sheets. Eng & Contr 46:193-4 Ag 30 '16
- Methods and cost of reproducing and reducing engineering drawings. J. X. Cohen. Eng & Contr 46:198-9 Ag 30 '16
- Photographing mine maps. H. A. Williamson. Coal Age 8:1015 D 18 '15
- Photographs as specifications. Eng Rec 74:418 S 30 '16

Photography, Aerial

- Photographic apparatus employed by German airmen. Il Sci Am 113:562-4 D 25 '15

Photography, Astronomical. See Astronomical photography**Photography, Color.** See Color photography**Photography, Flashlight**

- Making wild animals take their own pictures. W. Nesbit. Il diags Sci Am S 81:236-8 Ap 8 '16

Photography, Journalistic

- Unique truck camera. Il Munic Eng 51:202 N '16

Photography of machinery. See Machinery, Photography of**Photography of plants**

- X-ray pictures of living plants. Il Sci Am S 82:132 Ag 26 '16

Photography of projectiles

- Discussion of high-velocity photography. E. E. Gregory. Sci Am 115:301 S 30 '16
- Photographing of high velocity phenomena. W. A. Hyde. Il diags Sci Am 115:195 Ag 26 '16

Photogravure

- Screens for rotary photogravure. S. H. Horagan. Il Inland Ptr 58:82 O '16

See also Rotogravure

Photometry

- Application of Crova's method of colored light photometry to modern incandescent illuminants; with discussion. H. E. Ives and E. F. Kingsbury. Illum Eng Soc 10:716-26 no 8 '15
- Average eye for heterochromatic photometry, and a comparison of a flicker and an equality-of-brightness photometer. E. C. Crittenden and F. K. Richtmyer. diags Illum Eng Soc 11:331-56 no 3 '16; Abstract. Elec W 67:499-500 F 26 '16; Discussion. Illum Eng Soc 11:356-66 no 3 '16
- Box photometer. L. O. Grondahl. diags Illum Eng Soc 11:152-63 no 2 '16

- Candle-power measurements of series gas-filled incandescent lamps. R. C. Robinson. Il diags Gen Elec R 19:323-6 Ap '16; Same cond. Illum Eng Soc 11:187-9 no 2 '16; Same cond. Elec R & W Elec'n 68:458 Mr 11 '16; Abstract. Illum Engr 9:135 Ap '16; Discussion. Illum Eng Soc 11:190-1 no 2 '16

Color photometry. Elec W 68:138 JI 15 '16

- Comparative color photometer; a new system for the standardization and charting of colors and for scientific color synthesis. A. Howland. diags Sci Am S 82:220-1 S 30 '16
- Compensated test-plate for illumination photometers; with discussion. C. H. Sharp and W. F. Little. Illum Eng Soc 10:727-45 no 8 '15

Construction of a simple illumination tester. C. H. Sharp. Il diag Elec W 68:569-70 S 16 '16

- Daylight illumination, and the intensity and duration of twilight. H. H. Kimball. Il Illum Eng Soc 11:399-413 no 3 '16

Effect of atmospheric pressure on the candle-power of various flames; with discussion. E. B. Rosa, E. C. Crittenden and A. H. Taylor. Il diags Illum Eng Soc 10:843-67 no 9 '15

- Flame standards in photometry. E. B. Rosa and E. C. Crittenden. U S Bur Stand Bul 10:557-95 JI 15 '14; Same cond. Sci Am S 81:222-4 Ap 1 '16

Flicker photometer; abstract. H. E. Ives and E. F. Kingsbury. Elec W 67:1176 My 20 '16

- Flicker photometer frequency as a function of light intensity. L. T. Troland. J Fr Inst 182:261-3 Ag '16

Flicker photometer frequency as a function of the color of the standard, and of the measured, light. L. T. Troland. J Fr Inst 181:853-5 Je '16

- Future possibilities in the design of instruments for measuring illumination; discussion. diags Illum Engr 9:79-104 Mr '16

Heterochromatic brightness discrimination threshold. L. T. Troland. J Fr Inst 182:112-14 JI '16

- Illumination efficiencies as determined in an experimental room; with discussion. W. Harrison and E. A. Anderson. Il diags Illum Eng Soc 11:67-91 no 1 '16

Integrating photometric sphere, its construction and use. E. B. Rosa and A. H. Taylor. bibliog diags Illum Eng Soc 11:453-71; Discussion. 472-8 no 3 '16

- Interlaboratory photometric comparison of glass screens and of tungsten lamps, involving color differences; with discussion. G. W. Middlekauff and J. F. Skogland. Illum Eng Soc 11:164-86 no 2 '16

Lippmann films as means for securing monochromatic light in photometry and optical pyrometry. H. E. Ives. J Fr Inst 182:537 O '16

- Luminous efficiency of the solar radiation. H. E. Ives. Illum Eng Soc 11:888-90 no 8 '16

Minimum radiation visually perceptible. H. E. Ives. Sci Am S 82:315 N 11 '16

- Modern photometry; abstract. C. H. Sharp. Elec R & W Elec'n 69:594 S 30 '16

Modification of Bloch's method of calculating illumination. R. F. Pierce. diags Am Gas Light J 105:161-2 S 11 '16

- New illumination indicator requires no manipulation or adjustment to indicate candle power. R. F. Pierce. Il Am Gas Light J 105:97-8 Ag 14 '16

Photoelectric photometry. J. Kunz. J Fr Inst 182:693-4 N '16

- Photometric method in connection with magic lantern and moving picture outfits and a simple method of studying the intrinsic brilliancy of projection sources. J. A. Orange. diags Gen Elec R 19:404-5 My '16; Same. Sci Am S 82:303 N 4 '16

Photometry of electric lamps. Elec W 67:162-3 Ja 15 '16

- Photometry of gas-filled lamps; abstracts. G. W. Middlekauff and J. O. Skogland. Sci Am S 81:323 My 20 '16; Illum Engr 9:263 Ag '16

Physical photometer in theory and practice. W. W. Coblenz. diags J Fr Inst 180:335-48; 181:233-41 S '15, F '16

- Polarization flicker photometer. H. E. Ives. J Fr Inst 182:541 O '16

Photometry—Continued

- Practical hints on the use of portable photometers. W. F. Little. *Il Illum Eng Soc* 10: 766-79; Discussion. 779-92 no 8 '15
- Precision artificial eye; abstract. H. E. Ives. *il diag Elec W* 66:1437-8 D 25 '15
- Progress in photometry; committee report. *Il Illum Eng Soc* 10:550-6 no 7 '15; Same. *Il Illum Engr* 9:254-7 Ag '16; Same cond. *Am Gas Light J* 103:278 N 1 '15
- Relative photographic and visual efficiencies of illuminants. L. A. Jones, M. B. Hodgson and K. Huse. *il Illum Eng Soc* 10:963-86 no 9 '15
- Report of the committee on progress; photometry. *Il Illum Eng Soc* 11:748-52 no 8 '16
- Sharp photometer. *diag Engineer* 122:330 O 13 '16
- Standard methods of gas testing. *diag I S Bur Stand Circ* 48:94-125 '16
- Theory of some variable neutral tint-absorbing screens. E. F. Kingsbury. *diags J Fr Inst* 181:369-75 Mr '16

See also Light; Lighting

Photomicrography

- Insulator failures under transient voltages. W. D. Peaslee. *il diags Am Inst E E Pro* 35:1237-44 Ag '16
- Mazda lamp in photography. W. E. Brewster. *Gen Elec R* 19:191-2 Mr '16; Excerpt. *Iron Age* 97:779 Mr 30 '16
- Metallographic study of the copper ores of Maryland. R. M. Overbeck. *il Econ Geol* 11: 151-78 Mr '16
- Micro-photography in cotton spinning. *il Textile World* 51:565, 691 Ja 15 '16
- Segregated streaks in steel rails. G. F. Comstock. *il Iron Tr R* 59:941-6 N 9 '16
- Study of the silica refractories. J. S. McDowell. *il Am Inst Min E Bul* 119:2024-40 N '16

Phototherapy

- Modern science and war surgery; artificial sun baths and electric heating of the body. *il Sci Am S* 81:116 F 19 '16

Phthalein. See Phenoltetrachlorophthalein**Physical examinations**

- Cost of health supervision of employees; with table. M. W. Alexander. *Iron Age* 98:910-11 O 19 '16
- Employing methods that make good workers. R. T. Kent. *Iron Age* 98:244-7 Ag 3 '16
- Medical examinations of employees. C. H. Lemon. *Elec Ry J* 48:494-5 S 16 '16
- Physical examination for employees. F. D. Patterson. *Elec Ry J* 47:908-9 My 13 '16
- Physician in industry. M. W. Alexander. *Am Ind* 16:15-17 Ap '16; Same. *Iron Tr R* 59: 777-9 O 19 '16; Same abstr. *Am Gas Light J* 104:194-5 Mr 27 '16
- Test of physical fitness. *Sci Am S* 81:323 My 20 '16

Physical geography

- See also Caves; Earth; Geology; Glaciers; Icebergs; Landslides; Magnetism, Terrestrial; Peat; Seashore; Tides

Physical laboratories

- National physical laboratory. *Engineer* 122: 53-4, 87-8 JI 21-28 '16
- National physical laboratory—its work and aims; abstract. W. Rosenhain. *Am Soc M E J* 38:914-3 N '16

Physical measurements

- Apparatus for demonstrating the motion of gas molecules. *il Sci Am* 114:130 Ja 29 '16

Physicians

- War and the medical profession. *Sci Am* 114: 216 F 26 '16

Physicians in industrial practice, Conference board of. See Conference board of physicians in industrial practice**Physicians' offices**

- Cobb building, Seattle, Wash. J. J. Klaber. *il plans Arch Rec* 39:154-60 F '16

Physics

- Linear hot-wire anemometer and its applications in technical physics. L. V. King. *il diags J Fr Inst* 181:1-25 Ja '16
- Principle of relativity. *Sci Am S* 82:290-1 N 4 '16

Scientific advances during 1915. H. R. Hosmer. *il Gen Elec R* 19:313-16 Ap '16

See also Air; Atoms; Brownian movements; Capillarity; Chemistry; Compressibility; Electricity; Ether (of space); Expansion (heat); Gases; Gyroscope; Hydraulics; Hydrostatics; Light; Liquid air; Liquids; Magnetism; Mechanics; Molecules; Osmosis; Physical laboratories; Radiation; Radioactivity; Solids; Sound; Steam; Thermodynamics; Thermometers and thermometry; Vibration; Viscosity; Wave motion

Physiognomy

- Ancient principles of physiognomy. J. Jastrow. *Sci Am S* 81:231 Ap 8 '16

Physiological chemistry

- Physiological importance of phase boundaries; a consideration of the physical and chemical systems concerned in living cells. W. M. Bayliss. *Sci Am S* 81:18-19, 42 Ja 8-15 '16

See also Animal heat; Brain; Digestion; Enzymes; Hippuric acid; Osmosis; Pancreas; Proteins; Urea

Physiology

- Physiology of labor. *Sci Am* 115:296 S 30 '16

See also Brain; Electrophysiology; Longevity; Nutrition; Physiognomy

Piano players

- Electric piano as a field for central stations. *Elec R & W Elec'n* 68:462 Mr 11 '16
- Emphasizing the theme in a player piano. *diag Sci Am* 114:533 My 20 '16
- Modern electrical piano a triumph of musical expression. *il Elec W* 66:1273-4 D 4 '15
- Possibilities of electric piano-player shown. E. A. Sperry. *Elec R & W Elec'n* 67:1142 D 25 '15
- Remote controlled electric piano for picture theaters. *il Sci Am* 113:523 D 11 '15

Pianos**Manufacture**

- Electricity in the manufacture of pianos. *il Elec R & W Elec'n* 68:1108-10 Je 17 '16

Pickers

- Many problems in picker design. E. Tompkins. *diags Textile World* 51:2847+, 3287 Je 17, JI 22 '16
- Picker stick check. *diag Textile World* 51:4837 N 11 '16

Pickling (metals)

- Substitute for sulphuric acid in pickling. *Iron Age* 96:1519 D 30 '15

Pictures. See Etchings**Piece work**

- Setting piece rates. *Factory* 16:242-3 Mr '16
- Simplifying the paying of piece-workers. *Textile World* 51:835 Ja 22 '16
- Using coupons for piecework. *Factory* 17:192+ Ag '16

Piers

- Buffalo, Rochester & Pittsburgh dock at Buffalo. *il diag Ry Age* 61:359-60 S 1 '16; *Ry R* 59:685-6 N 18 '16
- New South Brooklyn pier at Thirty-fifth street is the longest in New York. *il diags Eng Rec* 72:753-4 D 18 '15
- 2500-ton concrete cribs are built and launched in a shipyard. *il diags Eng Rec* 73:73-4 Ja 15 '16
- Two-story shed for New York's forty-sixth street pier will be 969 feet long. C. W. Staniford. *diags Eng Rec* 73:708-9 My 27 '16
- See also Coal piers; Freight handling; Wharves

Piers (foundations)

- Cylinder pier foundations laid inside sheet-pile wells. C. S. Boardman. *il diag plan Eng N* 76:289-93 Ag 17 '16
- Cylinder-pier foundations of the Lincoln memorial. J. A. O'Connor. *il diags Eng N* 75: 558-61 Mr 23 '16
- Hydrated-lime mortar increases strength of brick piers. J. S. Macgregor. *Eng Rec* 74:165 Ag 5 '16
- Tremie plant for concreting subaqueous pedestals. K. Smith. *diags Eng N* 75:1186-7 Je 22 '16; Same. *Eng & Contr* 46:86-7 JI 26 '16
- Unique tremie float and driver rigged as derrick used by navy. K. Smith. *il diag Eng Rec* 74:451 O 7 '16

See also Bridges—Foundations and piers

Piers, Municipal

- Chicago municipal pier. I. W. Hoover. il plans Brickb 25:261-4, pl 153-4 O '16
 Chicago municipal recreation pier. il Elec R & W Elec'n 68:905-7 My 20 '16
 Concrete ocean pier built in form of hollow triangle at Redondo Beach, Cal. C. L. Roberts. il diag Eng N 76:518-20 S 14 '16
 Municipal docks at Astoria, Ore. J. P. Newell. il diag plan Eng N 76:697-700 O 12 '16
 Plumbing and piping on the municipal pier recently completed at Chicago. il diag Dom Eng 76:286-9 Ag 26 '16

Piezometer

- Compressibility of certain typical hydrocarbons, alcohols and ketones. T. W. Richards and J. W. Shipley. diag Am Chem Soc J 38: 992-5 My '16

Pig iron

- Charts showing prices of foundry coke, production of pig iron, unfilled tonnage United States steel corporation, net earnings United States steel corporation and lake shipments of iron ore, 1900-1915. Iron Tr R 58:56a Ja 6 '16
 December iron output sets record, 1876-1915. Iron Tr R 58:48 Ja 6 '16
 Foundry iron prices, Cincinnati and Chicago, 1888-1915. Iron Age 97:20 Ja 6 '16
 Lake Superior charcoal pig-iron prices for 27 years. Iron Age 97:21 Ja 6 '16
 Mahoning and Shenango foundry iron prices, 1901-1915. Iron Age 97:17 Ja 6 '16
 Malleable Bessemer pig-iron prices, Chicago, 1901-1915. Iron Age 97:17 Ja 6 '16
 Pig iron and metal products of the United States; calendar years 1906-1914. Metal Ind n s 14:55 Ja '16
 Pig-iron output grows. Iron Age 97:112-13 Ja 6 '16
 Pig-iron production in 1916. Eng & Min J 102: 396 Ag 26 '16
 Pig iron production in United States, 1915. Iron Tr R 58:556 Mr 9 '16
 Pig-iron production of the world in 1915. Eng & Min J 101:997 Je 3 '16
 Production of pig iron in the United States in 1915. Iron Age 97:612 Mr 9 '16
 Small gain in pig iron. Iron Age 96:1374-5 D 9 '15

See also Cast iron; Iron; Iron founding; Iron industry and trade

Pig iron association, American. See American pig iron association**Pigments**

- Detection of natural and artificial pigments in oleomargarine and butter. L. S. Palmer and W. E. Thrun. J Ind & Eng Chem 8:614-18 JI '16
 Effect of certain pigments on linseed oil. E. W. Boughton. U S Bur Stand Tech Pa 71:1-16 '16
 Physical characteristics of pigments and paints. H. A. Gardner. J Ind & Eng Chem 8:794-7 S '16

Pike's Peak highway

- Building the world's highest highway. N. L. Drew. il Sci Am 114:375 Ap 8 '16
 How they made a piker of Pike's Peak. il Horseless Age 37:180-1 Mr 1 '16
 Pike's Peak highway, Colorado. R. C. Hardman. il Eng N 74:1201-3 D 23 '15

Pile drivers

- Construction features and cost of pile-driver built for general use around water, Los Angeles, Cal. W. D. Jones. diags Eng & Contr 44:483-4 D 22 '15
 Revolving pile driver. il Eng & Contr 46:428-9 N 15 '16

Pile driving. See Piles and pile driving**Pile pulling**

- Clamps for pulling steel piles. diags Eng N 75: 472 Mr 9 '16
 Cofferdam piles easily pulled by inverted hammers. il Eng N 76:510 S 14 '16
 Inverted hammers pull 72-foot sheeting at New York pier. C. W. Staniford. il Eng Rec 74:627-8 N 18 '16
 Inverted steam hammer pulls 35-ft. piles in 90 seconds each. il Eng Rec 72:769 D 18 '15
 Locomotive crane on trestle pulls coffer-dam piles. il Eng N 76:509 S 14 '16

Pile extractor built by the Ransome-ver-Mehr machinery company, London, England. diags Am Soc M E J 38:837-8 O '16

Pile testing

- Building an unusual foundation for a heavy machine. G. L. Knight. il diags Eng N 75: 396-8 Mr 2 '16
 Concrete piles; test of pedestal pile foundations. il Munic J 40:91 Ja 20 '16
 Making pile tests for the new Chicago railway station. Eng N 76:801 O 26 '16
 Pedestal pile shafts exposed for test observation. il Eng N 75:91 Ja 13 '16
 Procedure in testing concrete piles. H. Abbott. il Concrete 8:178-9 Ap '16
 South End sewer system of Boston. E. S. Dorr. il diag Boston Soc C E J 2:368-70 D '15; Abstract. Eng N 75:127 Ja 20 '16
 Spruce piles cannot stand compacted gravel. C. T. Main and H. E. Sawtell. il plan Eng N 75:788-9 Ap 27 '16
 Test comparing steam and drop hammer pile formulas. Eng N 75:33-4 Ja 6 '16
 Tests of soil and methods of underpinning buildings adjoining subway construction on William street, New York. J. E. Greathead. diags Eng & Contr 44:477-81 D 22 '15

Piles and pile driving

- Brooming of piles in driving with steam hammers. R. N. Maxwell. Eng N 75:126-7 Ja 20 '16
 Cleaning hollow piles with a 10-in. orangepeel. G. L. Knight. il Eng N 75:28-9 Ja 6 '16
 Combination concrete and wood pile. L. L. De Bra. il diags Concrete 8:188-9 Ap '16
 Concrete highway trestle across Yolo bypass. il diags map Eng N 75:358-62 F 24 '16
 Concrete ocean pier built in form of hollow triangle at Redondo Beach, Cal. C. L. Roberts. il diag Eng N 76:519-20 S 14 '16
 Constructing pile foundation in hard gravel; with table showing itemized cost of pile driving. S. O. Steere. il diags Eng N 76: 338-9 Ag 24 '16
 Creosoted piling and poles. F. W. Cherrington. il Ry R 58:165-7 Ja 29 '16; Same cond. Eng Rec 73:105 Ja 22 '16; Same cond. Ry Age 60:122 Ja 21 '16
 Data on the use of mortar-coated timber piles at San Juan, Porto Rico; abstracts. J. P. Carlin. Eng & Contr 44:489-90 D 29 '15; Am Soc M E J 38:91 Ja '16
 Finish deep bridge substructure, of the Interstate bridge, designed to reduce work under water, month ahead of time. F. M. Cortel-you. il diags plan Eng Rec 74:36-9 JI 8 '16
 Formulas for determining the pressures on piles supporting masonry. J. R. Biedinger. Eng & Contr 45:245-6 Mr 15 '16
 Foundations for industrial buildings; with discussion. C. T. Main. Am Soc M E J 38:135-9 F '16
 Guide frame used to drive piles in 22-ft. tide at Balboa. A. F. Crary. il diags Eng Rec 72: 801-2 D 25 '15
 Making bottom for piles before driving. F. L. Simon. Eng & Contr 45:179 F 23 '16
 Modern methods of driving wooden piles. Ry R 59:686-9, 734-7 N 18-25 '16; Excerpts. Ry Age 61:747-8 O 27 '16
 New pile formula. C. F. Rohde. Eng N 75:476 Mr 9 '16
 Overdriven piles and poor subaqueous concrete. R. W. Stewart. il Eng N 75:30 Ja 6 '16
 Pile-and-mat foundation for power house in marsh of Newark bay. il plans Eng N 74: 1113-15 D 9 '15
 Pile driving. L. G. Hall. Eng & Contr 46:76-7 JI 26 '16
 Piledriving details on the Yolo bypass trestle. il diags Eng N 75:854-5 My 4 '16
 Pile driving with a can. P. L. McGeady. Eng Rec 72:736 D 11 '15
 Pile formula modified for double-acting hammer. Eng N 76:29, 417 JI 6, Ag 31 '16
 Pile hammer for steel piles. D. A. Watt. diags Eng N 76:609 S 28 '16
 Pile-hammer leads mounted on rollers. il Eng N 76:658 O 5 '16
 Pile-jetting practice. Eng N 76:950 N 16 '16
 Pipe piles cut off while platform is hung from them. A. P. Crary. il Eng Rec 73:60 Ja 8 '16

Piles and pile driving—*Continued*

- Shore end of Narrows siphon built in open trench dredged to depth of 50 ft. *il* diags Eng Rec 73:552-4 Ap 22 '16
- Special piledriver with adjustable leads. *il* diags Eng N 76:463 S 7 '16
- Standing big pipe piles on end to cast tips. A. P. Crary. *diag* Eng Rec 73:27 Ja 1 '16
- Steam-hammer pile formulas; suggestions and queries. A. M. Knowles. Eng N 75:372-3 F 24 '16
- Steel concrete cylinder piles for replacing a defective foundation. W. R. Phillips. *diags* Eng & Contr 45:550 Je 14 '16
- Two light piledriving rigs. *il* diags Eng N 76:462-3 S 7 '16
- Underpinning with hollow piles driven with point. G. L. Knight. *il* plan Eng N 76:982-5 N 23 '16
- Validity of pile formula. C. S. Howell. Eng N 75:813 Ap 27 '16
- Wood sheet piles jetted into hard pan with 400 pounds pressure. K. D. MacLean. *il* Eng Rec 73:686 My 20 '16

See also Cofferdams; Concrete piling; Foundations; Pile drivers; Pile pulling; Pile testing; Sheet piling; Wharves

Piling, Concrete. *See* Concrete piling

Piling, Sheet. *See* Sheet piling

Piling machines

Handling materials in manufacturing plants. R. L. Streeter. *il* Eng M 50:892-6 Mr '16

Pillars. *See* Columns

Pilot flame. *See* Gas burners

Pine

- Commercial uses of shortleaf pine. *il* Am For 22:517-20 S '16
- Commercial uses of white pine. *il* Am For 22:391-4 J1 '16
- 500,000 pines prospering. J. C. Mason. *il* Am For 22:41 Ja '16
- New rule for grading southern pine timbers. Ry Age 60:115 Ja 21 '16
- New rule for grading southern pine timbers. H. von Schrenk. Ry R 58:266-7 F 19 '16
- Resin in yellow pine for decay resistance. F. J. Hoxie; H. von Schrenk. *il* Eng N 75:765-6 Ap 20 '16
- Shortleaf pine. S; B. Detwiler. *il* map Am For 22:513-17 S '16
- Shortleaf pine; its economic importance and forest management. W. R. Mattoon. *il* U S Agric Bul 308:1-66 '15
- Use of native woods for interior finish. C. M. Price. *il* Brickb 24:298-300 D '15
- Utilization of wood waste. A. D. Little. J Ind & Eng Chem 8:102-5 F '16; Same. Met & Chem Eng 14:133-5 F 1 '16
- Waste pine wood utilization; some of the products obtained and processes employed. J. E. Teeple. Sci Am S 81:27 Ja 8 '16
- White pine. S; B. Detwiler. *il* map Am For 22:387-91 J1 '16
- Yellow-pine timber graded without guesswork. H. von Schrenk. Eng N 75:368-9 F 24 '16

Diseases and pests

- Alternate hosts of the white pine blister rust. L. R. Grose. *il* Am For 22:469-71 Ag '16
- Blister rust disease of white pine. P. Spaulding. *il* Am For 22:97-8 F '16
- Insect enemy of the white pine. P. L. Buttrick. *il* Am For 22:395-6 J1 '16
- White pine blister rust. Am For 22:627-8 O '16
- White-pine blister rust situation. P. Spaulding. *il* Am For 22:137-8 Mr '16
- White pine threatened. Am For 21:1122 D '15
- White pines threatened by destructive disease. Am For 22:662-3 N '16

Pine oil

- Pine needle oil industry. S; J. Record. *il* Sci Am 114:100-1 Ja 22 '16
- Pine oil for flotation. C. F. Sherwood. Eng & Min J 101:21-2 Ja 1 '16
- Pine oil for flotation purposes; abstract. T. R. Jones. Met & Chem Eng 15:598 N 15 '16

Pineapples

- Injecting iron into sick pineapples. Sci Am 115: 392 O 28 '16

Pinions

Short cut in welding rolling mill pinions. *il* diags Foundry 44:220-1 Je '16

Pinking machine

Pinking machine. *il* Textile World 51:271 D 25 '15

Pipe. *See* Pipes

Pipe bending

- How to bend cast iron soil pipe. *il* Dom Eng 73:303 D 4 '15
- Machine bends eight-inch pipe at low cost in field. *diag* Eng Rec 74:661 N 25 '16
- Pipe bending machine. E. A. Murray. *diag* Ry Mech Eng 90:321 Je '16
- Simple machine lowers cost of pipe bending. C. Wilde. *il* Am Gas Light J 105:317 N 13 '16

Pipe bends

- Bends for pipe-line expansion. W. L. Durand. Power 42:786 D 7 '15; Same. Eng & Min J 101: 184 Ja 22 '16
- Making a special pipe bend for a hurry-up job. J. Koegle. *diags* Foundry 44:372 S '16
- See also* Pipe elbows

Pipe covering

- Loss of heat through pipe covering. Iron Age 97:1122-3 My 4 '16
- Painting a pipe line by machine. Eng Rec 72: 735 D 11 '15

See also Steam pipe coverings

Pipe cutters

- Cutting pipe in the trench. *il* Munic Eng 51: 32 J1 '16

Pipe elbows

- Chart for laying out quarter patterns for any size two-piece elbows. Metal Work 86:84 J1 21 '16
- Compound elbows in rectangular piping. *diags* Metal Work 86:581-2 N 10 '16
- Laying out an eccentric elbow. M. W. Ward. Power 42:828 D 14 '15
- Making elbow in square pipe. E. C. Chappelle. *diags* Metal Work 86:278 S 1 '16

Pipe fittings

- Accident narrowly averted; exhaust piping. H. G. Schuler. *diags* Power 43:268 F 22 '16
- Pipe-fitting suggestions. Power 42:895-6; 43: 228, 263 D 28 '15, F 15-22 '16
- Recent developments in the standardization of pipe and pipe fittings. C. W. Ham. *diags* Sibley J 30:198-201 Mr '16
- Underground pipe fittings. *il* Eng & Min J 100:973 D 11 '15
- Water supply to dwellings and large buildings. J. Graham. *diags* Dom Eng 76:357-8; 77:39-40, 255-6 S 9, O 14, N 25 '16
- See also* Furnaces; Hot air—Pipes and fittings; Gas fitting; Hot water heating; Pipe joints; Plumbing; Steam pipes

Pipe flanges

- Oval flanges for steam, air, water and other pipes; abstract. Fairfax. Am Soc M E J 38: 595 J1 '16

Pipe gages

- Convenient pipe gage. B. F. Dashiell. *diags* Mach 23:61 S '16

Pipe galleries. *See* Subways (conduits)

Pipe hangers

- Convenient form of pipe hanger; tabulation. Elec W 67:45 Ja 1 '16
- Pipe hangers; methods of arranging and determining strength of various types of supports. H. L. Alt. *diags* Heat & Ven 13:11-16 Mr; 19-25 Ap '16

Pipe joints

- Air leak in condenser system. F; L. Ray. *diag* Power 42:799 D 7 '15
- Can ground water be kept out of sewers? C; P. Chase. Eng Rec 73:445 Ap 1 '16
- Cast iron pipe joints. Am Gas Light J 105: 282 O 30 '16
- Cast-iron pipe joints. E. J. Lame. Am Gas Light J 105:363-4 N 27 '16
- Cement instead of lead for pipe joints. Eng N 74:1047-8 N 25 '15; Same. Eng & Min J 100: 1010 D 18 '15
- Cement joints for cast-iron pipe at Los Angeles. W; Mulholland. Eng N 74:1284 D 30 '15
- Compensating for pipe expansion in small space. *diag* Elec W 67:1308 Je 3 '16

Pipe joints—Continued

- Contractors suggest schemes for subaqueous pipe line. E. N. Smith. Eng Rec 73:494 Ap 8 '16
- Cost of welded pipe joints. Am Gas Light J 104:141 F 23 '16
- Crosshead-guided expansion joint. Iron Tr R 59:779-80 O 19 '16
- Data and discussion on cast iron pipe joint tests for the San Francisco high pressure fire system. A. J. Bowie. diags Eng & Contr 46:40-4 Jl 12 '16
- Expansion and contraction of pipe lines. G. F. Gebhardt. il Textile World 51:2673 Je 3 '16
- Expansion joint for water heater. diags Ry Age (Mech ed) 89:628 D '15
- Experiences with leadite joints at Springfield, Mass. A. E. Martin. Eng & Contr 45:207-8 Mr 1 '16
- Flexible pipe connection. il diag Ry Age 60:69 Ja 14 '16; Ry Mech Eng 90:49 Ja '16
- Grinding dry pipe joints. H. C. Gillespie. diag Ry Mech Eng 90:425-6 Ag '16
- Grinding dry pipes. V. T. Kropidowski. diag Ry Mech Eng 90:87 F '16
- Hinge joints in mains prevent shutting off of service to consumers during bridge moving. diag Am Gas Light J 105:87 Ag 7 '16
- Injector steam pipe roller and expander. R. J. Hettenbaugh. diags Ry Mech Eng 90:525 O '16
- Leakage from lead joints in cast-iron water pipes; abstract. A. H. Smith. Am Soc M E J 38:425 My '16
- Leakage from pipe joints; warrants investigation. F. A. Barbour. Eng Rec 74:385-6 S 23 '16
- Making tight joints in submerged sanitary sewers on Coney Island. Eng & Contr 45:143 F 9 '16
- Methods, cost and results obtained in the use of asphalt for joints in tile pipe sewers. P. E. Green. il Eng & Contr 45:192-6 F 23 '16
- Oxy-acetylene welding rapidly taking its place in distribution work as a means by which many things hitherto considered impossible can be accomplished. C. Wilde. Am Gas Light J 105:297-9 N 6 '16
- Pipe couplings; abstract. R. S. Lord. Am Soc M E J 38:191 F '16
- Pouring lead joint under water. J. E. Noble. il Power 44:665 N 7 '16
- Removing lead calking with the blow pipe. il Eng & Contr 46:232 S 13 '16
- Review of American gas institute committee work on distribution subjects. G. I. Vincent. Am Gas Light J 104:394-5 Je 19 '16
- Selecting economical type of riveted joint for steel pipes and standpipes. F. H. Carter. Eng Rec 74:467-9 O 14 '16
- Tests of pipe connections; results at University of Kansas with oxy-acetylene joints and screwed fittings. Iron Age 97:552-3 Mr 2 '16; Same. Am Gas Light J 104:181 Mr 20 '16; Same. Gas Age 38:125-6 Ag 1 '16; Excerpts. Mach 22:619 Mr '16
- Tests of welded pipe connections. F. H. Sibbey. il Iron Tr R 59:568-9 S 21 '16
- Tightening wedge filler for cast iron pipe joints. diags Eng & Contr 46:228 S 13 '16
- Union Pacific extension exhaust pipe seats. diags Ry Mech Eng 90:525-6 O '16
- Water losses in city systems. F. A. Barbour. Eng N 76:958-60 N 16 '16; Same (Committee wants data on pipe-joint leakage to check \$4,000,000 annual loss). Eng Rec 74:616 N 18 '16
- Welded offset pipe connections. il Power 43:623-4 My 2 '16
- Welded steam-pipe joints. R. K. Long. diag Power 44:697-8 N 14 '16
- Welding a 4,000-ft. steam main. il Power 43:359-60 Mr 14 '16
- Welding of high pressure mains at Springfield, Mass.; abstracts. A. S. Hall. il Am Soc M E J 38:351-2 Ap '16; Am Gas Light J 104:196-8 Mr 27 '16

Pipe laying

- Conditions encountered and methods employed in laying water pipes in the congested streets of New York city. M. Blatt. Eng & Contr 44:246-7 S 29 '15; Same cond. Metal Work 84:804 D 24 '15
- Connecting Narrows siphon to Staten Island main. il diags Eng N 76:782-5 O 26 '16

- Difficult work in large gas pipe laying under the Lachine canal and adjacent swamps. C. H. Osler. diags Am Gas Light J 103:371-3 D 13 '15
- English high pressure mains. B. F. Botwood. diags Am Gas Light J 104:106-8 F 14 '16
- Giant pipe pusher. il Dom Eng 74:275 F 26 '16
- How to lay a four-inch water main under water. diags Dom Eng 77:258-9 N 25 '16
- Iron and steel sewer pipe. J. F. Springer. il Munic Eng 51:87-91 S '16
- Laying a small cast-iron pipe across a narrow stream. C. R. Gow. il Boston Soc C E J 2:373-5 D '15; Same. Eng & Contr 44:500 D 29 '15; Same. Eng N 75:279 F 10 '16
- Laying a submerged water main by rope haulage. H. B. Hemstrought. il diag Eng N 75:124-5 Ja 20 '16
- Laying submerged water mains at Vancouver, B. C. il map Eng N 74:1253-9 D 30 '15
- Machine for laying drain tile without trenching. il Eng N 75:615-16 Mr 30 '16
- Making and laying home-made pipe for water mains. il Eng N 75:300-2 F 17 '16
- Method employed in laying a 16-in. cast iron pipe across a river at Binghamton, N. Y. F. C. Perkins. il plan Eng & Contr 45:499 My 31 '16
- Methods employed in spanning the treacherous Brazos river with two 10-in. gas mains. C. R. Sutton. il Eng & Contr 45:441-2 My 10 '16
- Mississippi river plays with pipe-laying job. G. H. Herrold. il Eng N 76:1038-9 N 30 '16
- Motor truck used to dig and backfill trench for 14,000-foot high pressure main to U. S. radio station. D. J. Young. il Am Gas Light J 105:129-30 Ag 28 '16; Same. Gas Age 38:189-90 Ag 15 '16
- Moving a 30-inch gas main. il Am Gas Light J 104:93 F 7 '16
- New England pipe line of unusual length of machine-made wood pipe. A. W. Dudley. Eng & Contr 46:234 S 13 '16
- New Quincy, Ill., intake characterized by provision against accumulation of sand; cost data. il Eng Rec 73:13 Ja 1 '16
- Old pipe relaid for Galveston's submerged line. E. B. Van De Greyn. il Eng Rec 73:739-40 Je 3 '16
- Pipe laying appliance. diag Eng & Contr 46:420 N 8 '16
- Restoration of gas mains over rapid transit tunnels. J. E. Worsley. il diags plans Gas Age 38:61-7, 115-20 Jl 15-Ag 1 '16
- Shore end of Narrows siphon built in open trench dredged to depth of 50 ft. il diags Eng Rec 73:552-4 Ap 22 '16
- 6,500-ft. continuous wire wound wood stave pipe line in California. il Eng & Contr 46:28-9 Jl 12 '16
- Two welded gas mains laid under Brazos river. il Eng N 75:1044-5 Je 1 '16
- Use of rectangular sections solves many problems in restoring gas mains during subway construction. C. N. Green. il Am Gas Light J 105:259-60 O 23 '16
- Various types of sub-surface piping. H. L. Alt. diags Dom Eng 74:34-6 Ja 8 '16
- Weided gas mains under Brazos river, Waco, Tex. il Am Gas Light J 104:397 Je 19 '16
- Welding of joints facilitates work of laying main across Du Page river. E. E. Lungren. il Am Gas Light J 105:281 O 30 '16
- Windlass arrangement takes place of tripod and 4-legged derricks on San Francisco distribution work. D. E. Keppelmann. il Am Gas Light J 105:211-12 O 2 '16; Excerpt. Eng Rec 74:542 O 28 '16

See also Pipe lines; Street openings; Water supply engineering

Cost

- Cost of excavating pavement, trenching and steam pipe laying. Eng & Contr 46:62 Jl 19 '16
- Cost of laying water mains in city streets. Eng & Contr 45:540 Je 14 '16
- Costs of 12 and 16 foot length cast-iron pipe. Am Gas Light J 104:45 Ja 17 '16
- High pressure system; and welding mains at Springfield, Mass. A. S. Hall. il diags Am Gas Light J 104:196-8 Mr 27 '16

Pipe laying—Cost—Continued

San Francisco's hills add much to the beauty of the city—also to the cost of laying pipe. D. E. Keppelmann. *Am Gas Light J* 105:216-20 O 2 '16

Pipe lines

Building a pipe-line of concrete. I. F. Springer. *il Sci Am* 115:371+ O 21 '16
Capacity of twin pipe line. F. H. Kingsbury. *Eng N* 75:1239 Je 29 '16
Concrete cantilever trusses support large pipe line. *il Eng Rec* 72:696 D 4 '15
Effective pipe-line support. *diags Eng & Min J* 102:548 S 23 '16
Effects of electrolysis on engineering structures. A. F. Ganz. *Stevens Ind* 32:328-38 O '15; Same. *Sci Am S* 81:302-3 My 6 '16
Electrolysis and its mitigation. E. B. Rosa and B. McCollum. *il diags U S Bur Stand Tech Pa* 52:1-143 '15
Handling pipe line under 15-lb. pressure while bridge is raised. R. C. Hardman. *Eng Rec* 73:27-8 Ja 1 '16
Roughness of steel pipe after 22 years' service. W. L. Reynolds. *Eng N* 76:896 N 9 '16
Seattle utilities pay city for subsurface maps. A. L. Valentine. *maps Eng Rec* 72:792 D 25 '15
Twin-pipe problem solved by hydraulic slide-rule. A. Hazen. *Eng N* 76:85 Ji 13 '16
Washington systematizes subsurface mapping. A. E. Phillips. *map Eng Rec* 74:262-3 Ag 26 '16
Weights of pipe and advisable radii to employ in expansion bends. *Elec W* 66:1435-6 D 25 '15
Working air out of pipe line tested in long sections. R. C. Hardman. *Eng Rec* 73:262 F 19 '16

See also Electrolytic corrosion; Gas pipes; Petroleum pipe lines; Pipe laying; Pipes; Steel; Piping; Steam pipes; Street openings; Water pipes; Water supply engineering

Pipe thawing. See Thawing**Pipe threading**

Tests on threading steel and wrought iron pipe; with discussion. C. G. Dunnells. *il diags Am Soc Heat & V E* 21:307-19 '15

Pipe threading machines

Electrically driven combination threading and cutting-off machine. *il Elec R & W Elec'n* 69:777 O 28 '16
Toledo pipe threading tools. *il Ry R* 58:684-5 My 13 '16

Pipe threads

Dangerous long screws. L. F. Lyne. *il Power* 42:824 D 14 '15
Fine thread sizes. P. W. Blair. *Metal Ind n s* 14:123 Mr '16
Why American water pipes are best. P. G. Donald. *il diags Dom Eng* 76:461-5 S 30 '16; Same. *Gas Age* 38:399-402 O 16 '16; Same cond. *Am Ind* 17:30-2 Ag '16; Same cond. *Iron Age* 98:400-3 Ag 24 '16; Same cond. *Metal Work* 86:368-71 S 22 '16; Same cond. *Eng & Contr* 46:327-8 O 11 '16; Abstract. *Eng & Min J* 102:596 S 30 '16; Abstract. *Heat & Ven* 13:49-50 O '16

Pipes

Cast-iron pipe manufacture in the South. Y. A. Dyer. *il Iron Age* 98:1159-62 N 23 '16
Cast-iron pipe prices—1900 to 1915. *Iron Age* 97:16 Ja 6 '16
Cast iron pipe production in 1914. *Foundry* 44:251 Je '16
Centrifugal machine for casting pipe. *il diag Iron Age* 98:506-9 S 7 '16; Same. *Metal Work* 86:342-5 S 15 '16; Abstract. *Am Soc M E J* 38:831 O '16
Chart for determining areas of cylindrical pipes for ducts. W. F. Schaphorst. *Heat & Ven* 13:48 N '16
Collapsible core bar for casting pipe. *il Iron Age* 97:601 Mr 9 '16
Equalizing table for delivery capacity of wrought iron pipe. *Eng & Contr* 46:325 O 11 '16
Expansion and contraction stress in pipes. *Power* 43:351 Mr 14 '16
Galvanized pipe for ammonia. D. L. Fagnan. *Power* 43:666-7 My 9 '16
Galvanized pipe for ammonia. T. G. Thurston. *Power* 43:414 Mr 21 '16

Gas makes four-inch pipe possible. H. C. Estep. *il Iron Tr R* 59:1054-5 N 23 '16
Ice pipe carries power water while screen is installed. *diag Eng N* 75:903 My 11 '16
Minimum length of pipe nipples. *diags Am Gas Light J* 104:141 F 28 '16
Minimum nipples for use with plugged pipe. T. W. Reynolds. *diag Elec W* 67:98-9 Ja 8 '16
Pattern for a Y developed by radial lines. *diag Metal Work* 86:45 Ji 14 '16
Physical and structural properties of pipes and tubing; tabulation. C. A. Mees. *Elec W* 67:87 Ja 8 '16
Problems in pipe foundry practice. F. M. Warner. *Foundry* 44:201-2 My '16
Problems in pipe foundry practice discussed. R. Robertson. *diags Foundry* 44:53-6 F '16
Recent developments in the standardization of pipe and pipe fittings. C. W. Ham. *diags Sibley J* 30:198-201 Mr '16
Skilley cores for cast iron pipe. *Foundry* 44:305 Ag '16
Water and steam piping. *Metal Work* 85:353 Mr 10 '16
Why American water pipes are best. P. G. Donald. *il diags Dom Eng* 76:461-5 S 30 '16; Same. *Gas Age* 38:399-402 O 16 '16; Same cond. *Am Ind* 17:30-2 Ag '16; Same cond. *Iron Age* 98:400-3 Ag 24 '16; Same cond. *Metal Work* 86:368-71 S 22 '16; Same cond. *Eng & Contr* 46:327-8 O 11 '16; Abstract. *Eng & Min J* 102:596 S 30 '16; Abstract. *Heat & Ven* 13:49-50 O '16
See also Air pipes; Gas pipes; Heating pipes; Hot water heating; Piping; Piping (power plants); Sewer pipes; Siphons; Steam heating; Steam pipes; Tubes; Water pipes; also headings beginning Pipe

Repair

Pipe-straightening device. C. C. Semple. *diags Eng & Min J* 101:353-4 F 19 '16
Repairing split and corroded pipe with an oxy-acetylene welder. *il Eng & Contr* 45:416 My 3 '16
Stopping leaks in pipes. A. P. Connor. *il Power* 43:452 Mr 28 '16

Testing

Corrugated culvert pipes tested under a sand bed. G. L. Fowler. *diags Elec Ry J* 47:914-16, 964-5 My 13-20 '16; Same cond. *Ry Age* 60:1073-7 My 19 '16; Same cond. *Eng Rec* 73:668-9, 706-7 My 20-27 '16; Abstract. *Eng N* 75:958 My 18 '16
High-pressure test of pipe with unbolted flanges. J. W. Swarn. *il Eng N* 75:1094 Je 8 '16
Methods of testing for pipe corrosion. F. N. Speller. *il Iron Tr R* 58:1426 Je 29 '16; Same. *Met & Chem Eng* 15:87 Ji 15 '16; Same. *Power* 44:307 Ag 29 '16; Same cond. *Iron Age* 98:79 Ji 13 '16; Same cond. *Metal Work* 86:274 S 1 '16
Steel in wrought-iron pipe. *Iron Age* 97:1132-3 My 11 '16; *Iron Tr R* 58:1052 My 11 '16; *Am Gas Light J* 104:381 Je 12 '16; *Eng Rec* 74:110 Ji 22 '16; *Eng & Min J* 102:304 Ag 12 '16

Pipes, Brass

Effect of solutions of filter alum on brass pipe and fittings. G. R. Spalding. *Am Water Works Assn J* 3:107-10 Mr '16

Pipes, Concrete

American concrete pipe association convention, Chicago, Feb. 17. *Concrete* 8:131-2 Mr '16
Building a pipe-line of concrete. I. F. Springer. *il Sci Am* 115:371+ O 21 '16
Core joint reinforced concrete pipe. *il diag Munic J* 40:563 Ap 20 '16
Durability of concrete pipe. J. H. Libberton. *Eng & Contr* 45:277 Mr 22 '16
Making lock-joint concrete pipe at Dallas, Tex. *il Eng N* 75:563-5 Mr 23 '16
Reinforced-concrete pipe used for railway culverts. *diags Eng N* 76:592-3 S 28 '16
Steel reinforced concrete pipes. *il diags Engineer* 121:415-17 My 19 '16
Tests of reinforced concrete pipe. J. S. Lambie. *il Iron Tr R* 59:81-2 Ji 13 '16

Pipes, Furnace. See Furnaces, Hot air—Pipes and fittings

Pipes, Gas. See Gas pipes

Pipes, Heating. See Heating pipes

Pipes, Sewer. See Sewer pipes

Pipes, Steam. See Steam pipes

Pipes, Steel

Case for steel pipe. L. C. Wilson. Am Gas Light J 105:10-13 J1 3 '16

Constructing a small, steel water supply main in the Philippines. Eng & Contr 45:187-8 F 23 '16

Corrosion of 350-mile Australian steel pipe line 12 years old. P. V. O'Brien. Eng Rec 74:501-2 O 21 '16

Cost determinations of 22-in. steel pipe manufacture. H. A. Whitney. Eng & Contr 45:497-9 My 31 '16

Production of steel pipe; chart. Elec Ry J 48: 519 S 16 '16

Roughness of steel pipe after 22 years' service. W. L. Reynolds. Eng N 76:896 N 9 '16

Selecting economical type of riveted joint for steel pipes and standpipes. F. H. Carter. Eng Rec 74:467-9 O 14 '16

Steel pipe for 37-inch water main 9½ miles long at Rochester recommended. E. A. Fisher. Eng Rec 74:40-1 J1 8 '16

Steel pipe lasted 22 years. E. G. Markley. il Eng N 75:78 Ja 13 '16

Wood against steel pipe in Seattle water-works. J. Lamb. Eng N 75:647 Ap 6 '16

Pipes, Tobacco

Laurel root as a substitute for French briar. Sci Am 115:290 S 23 '16

Maple wood, a substitute for French briar. Sci Am 115:301 S 30 '16

Pipes, Water. See Water pipes

Pipes, Wood

Causes of recent breaks in Seattle wooden stave water supply pipe line. Eng & Contr 45:197-8 F 23 '16

Continuous wire winding for wood-stave pipe. il Eng N 74:1210-11 D 23 '15; Eng & Min J 101:355 F 19 '16; Munic Eng 50:228 Je '16

Experience with wood pipes in New Hampshire; abstract. A. W. Dudley. Am Soc M E J 38:832-3 O '16

New England pipe line of unusual length of machine-made wood pipe. A. W. Dudley. Eng & Contr 46:234 S 13 '16

San Diego, California, makes repairs to its wood pipe and tunnels. Eng Rec 74:651 N 25 '16

Seattle water-works troubles. C. E. Fowler. il map Eng N 75:585-8 Mr 30 '16

6,500-ft. continuous wire wound wood stave pipe line in California. il Eng & Contr 46: 28-9 J1 12 '16

Why the Seattle wood-stave water pipe failed. R. H. Ober. il Eng N 75:242-4 F 3 '16

Wood against steel pipe in Seattle water-works. J. Lamb. Eng N 75:647 Ap 6 '16

Wood-stave water conduits. J. F. Partridge. Eng N 75:911-12 My 11 '16

Wooden pipe a century in the ground. il Am For 22:213 Ap '16

Pipets

Automatic pipette. A. Lowy. diags J Ind & Eng Chem 8:734-5 Ag '16

Method of drop measuring liquids and suspensions. R. Donald. Sci Am S 81:399-400 Je 17 '16

Pipettes especially adapted for use with alkaline pyrogallol. R. P. Anderson. diags J Ind & Eng Chem 8:133-5 F '16

Reagents for use in gas analysis; the specific absorption of alkaline pyrogallol in various pipettes. R. P. Anderson. diags J Ind & Eng Chem 8:131-3 F '16

Piping

Colored flanges to identify pipe lines. Elec W 68:814 O 21 '16

Distinguishing pipe lines. A. P. Connor. il Power 43:196 F 8 '16

Distinguishing pipe lines. T. W. Reynolds. Power 43:628 My 2 '16

Further plans on painting pipe. Factory 16: 616 Je '16

Pipe symbol chart. T. W. Reynolds. Heat & Ven 13:49-51 F '16

Piping arrangements for heating systems. C. L. Hubbard. Dom Eng 75:98-100, 128-9, 196-7, 226-8 Ap 22-29, My 13-20 '16

Plumbing in the record and office building of the Chicago and Northwestern railway. plan Dom Eng 76:388-9 S 16 '16

See also Plumbing; Steam pipes

Piping (power plants)

Cincinnati hospital plant. T. Wilson. diags Power 43:828-30 Je 13 '16

Conway building power plant, Chicago. T. Wilson. il plan Power 43:110-11 Ja 25 '16

Danville municipal lighting plant. W. O. Rogers. il diags Power 43:572-7 Ag 25 '16

Essex power station. diag Power 44:742 N 28 '16

Ford gas-steam plant, Detroit. T. Wilson. plan Power 44:708 N 21 '16

Manchester to Bury electrification. il diags Engineer 121:52-5 Ja 21 '16

New Fremont, Ohio, power plant. W. O. Rogers. plan Power 44:580 O 24 '16

Operating a station under unfavorable conditions. plans Elec W 68:763 O 14 '16

Power cost in paper mill. T. Wilson. plans Power 44:190-2 Ag 8 '16

Power plant of the Edmonton Portland cement co., Edmonton, Can. A. G. Christie. il diag plans Power 43:100-3 Ja 25 '16

Remington arms & ammunition company's power plant. W. O. Rogers. il diags plan Power 43:310-15 Mr 7 '16

Rochester (Minnesota) state hospital plant. T. Wilson. il plans Power 43:170-4 F 8 '16

Taking oil from feed water. R. A. Langworthy. plan Power 43:154-5 F 1 '16

Unit no. 3 at Northwest station of the Commonwealth Edison co., Chicago. T. Wilson. diags Power 43:867 Je 20 '16; Same cond. (Chicago station has 45,000-hp. steam turbine). Eng N 76:53 J1 13 '16

West Penn traction co.'s Wheeling power plant. W. E. Moore. il plans Power 42:816 D 14 '15

See also Steam pipes

Pistols

Four-shot pistol that is operated by the rotation of the firing-pin. il Sci Am 115:45 J1 8 '16

Piston rings

Leak-proof piston rings. il Ry R 59:59 J1 8 '16

Notes on piston-ring design; abstract. G. Williams. Am Soc M E J 38:1037-8 D '16

Piston valve packing. See Packing rings

Pistons

Aluminum alloy pistons. M. R. Machol. il Horseshoe Age 36:413-16 N 1 '15

Aluminum pistons—metal molds. J. E. Diamond. diag Horseshoe Age 37:122 F 1 '16; Abstract. Am Soc M E J 38:266 Mr '16

Aluminum-steel piston. W. H. Bishop. Automobile 35:718-19 O 26 '16

Cracked and seized pistons. P. H. Smith. Power 43:32 Ja 4 '16

Putting piston into cylinder. J. Spaander. diags Power 44:727 N 21 '16

Secret of aluminum piston success. A. L. Clayden. Automobile 35:317-18 Ag 24 '16

Straightening triple valve pistons. J. A. Jesson. diags Ry Mech Eng 90:43-4 Ja '16

See also Piston rings

Pitch

Coal-tar pitch. J. M. Weiss. J Ind & Eng Chem 8:841-4 S '16

See also Bituminous materials

Pitch, Musical. See Musical pitch

Pitch filler. See Pavements—Fillers

Pitchblende

Occurrence, geology and economic value of the pitchblende deposits of Gilpin county, Colorado. P. R. Alsdorf. Econ Geol 11:266-75 Ap '16; Discussion. E. S. Bastin. Econ Geol 11:681-5 O '16

Pitot tube

Caution in use of pitot tube. L. A. Nilson. diags Power 44:311-12 Ag 29 '16

Difficult pump test made with Pitot tube. C. E. Grunsky. il diags Eng N 76:8-11 J1 6 '16

Flow of air and steam through orifices. H. B. Reynolds. diag Am Soc M E J 38:953-8 D '16

Measurement of air flow. A. K. Ohmes. il diags Am Soc Heat & V E 21:450-69; Discussion. 469-72 '15

Pitot tube —Continued

- Method of determining dust loss at Copper Cliff, Ont. E; H. Robie. *il diag Eng & Min J* 101:505-8 Mr 18 '16
 Pitot tube formula. *Power* 43:451 Mr 28 '16
 Pump tests with Pitot tube. W. B. Gregory. *Eng N* 76:180 J1 27 '16
 Will Quizz, Jr. *diag Power* 43:144-6 F 1 '16

See also Impact tubes

Pittsburgh, Pennsylvania**Bridges**

- Reconstruction of the Ohio connecting bridge. *il diags Ry Age* 60:311-14 F 18 '16

Railroads

- Single grade-crossing elimination at Pittsburgh will cost \$750,000. *il diags plan Eng Rec* 73:797-9 Je 17 '16

Rapid transit

- New franchises sought in Pittsburgh. *Elec Ry J* 47:96 Ja 8 '16

Streets

- Elevation of low-level streets on Pittsburgh river front. C; M. Reppert. *il diags Eng N* 75:154-7 Ja 27 '16
 Pittsburgh's streets. *il chart Good Roads n s* 11:47-54 F 5 '16

Pittsburgh university. Mellon institute

- Blazing a trail for the industries. H. Knowles. *il Sci Am* 115:206-8 S 2 '16

Placer mining. See Hydraulic mining**Plague**

- Relation of rodent plague to human infection. W. C. Rucker. *Sci Am S* 81:199 Mr 25 '16

Plainfield, New Jersey**Architecture**

- Municipal building at Plainfield. L. F. Peck and W; L. Bottomley. *il plans Arch Rec* 40:450-4 N '16

Planck's law

- New relation derived from Planck's law. P. D. Foote. *U S Bur Stand Bul* 12:479-82 F 3 '16

Plane table

- Combination of plane table and transit for topography. H. T. Johnson. *diag Eng N* 76:488-90 S 14 '16
 Gurley explorers alidade. *il Eng & Contr* 46:188 Ag 30 '16
 Parallel-ruler alidade for the plane-table. C. T. Bussell. *il Eng N* 75:175 Ja 27 '16

Planers. See Planing machines**Planimeters**

- Easily made planimeter. C. S. Ricker. *il diags Power* 44:361-2 S 5 '16; *Same. Coal Age* 10:460 S 16 '16

Planing

- Setting the planer radius attachment. J; Lynch. *il diags Mach* 22:592-4 Mr '16

Planing machines

- Labor saving devices in the machine shop. A. A. Dowd. *il Eng M* 51:195-7 My '16
 Machining Howitzer guns on a planer. *il Iron Age* 98:699 S 28 '16

See also Machine tools

Planing mills

- Rush time in the planing mill. J; Wavrek, Jr. *Bldg Age* 38:57-8 J1 '16

Plank roads. See Roads, Plank**Plankton**

- Collecting minute plankton. *Sci Am S* 81:404 Je 24 '16

Planning

- First principles of shop planning. F. M. Perkins. *il Iron Tr R* 58:187-92+ Ja 20 '16
 Planning a foundry from its future operations. E. F. Lake. *Foundry* 44:215-17 Je '16
 Planning and efficiency system in Portland (Ore.) shops; adaptation of the Taylor system to electric railway repair shops. F. P. Maize. *Elec Ry J* 47:539-49 Mr 18 '16

- Planning work ahead in the foundry. *Iron Age* 97:1247-50 My 25 '16

Planning boards

- Dispatch system of Norton grinding company. *il Iron Age* 98:1-5 J1 6 '16

- How a Worcester plant controls production.

- W. E. Freeland. *Iron Age* 98:749-51 O 5 '16
 Keeping track of parts in manufacture. *Factory* 16:600+ Je '16

- Millions for paving controlled by handful of pins. *il map Eng Rec* 72:714-17 D 11 '15

- Organization of highway departments and the use of planning boards to simplify the operations. W; H. Connell. *Good Roads n s* 11:14-15 Ja 1 '16

- Planning boards for Philadelphia highway bureau. *Munic J* 41:38-9 J1 13 '16

- Production system in a 75-man shop. W. E. Freeland. *il Iron Age* 98:871 O 19 '16

- Taylor system in Franklin management. G; D. Babcock. *Ind Management* 52:350-4 D '16

Plant introduction

- Plants from China; results of the first plant introduction expedition. *Sci Am S* 81:345 My 27 '16

Plants

- Plant surgery. *il Sci Am* 115:501 D 2 '16

See also Burning bush; Sap; Venus fly trap

Chemistry

See Botanical chemistry

Plants, Concrete. See Concrete plants**Plants, Diseases of**

- Presence of nitrites and ammonia in diseased plants. P. A. Bonquet. *Am Chem Soc J* 38:2572-6 N '16

Plants, Effect of gases on

- Leaking gas which finds way into greenhouses extremely injurious to plants, but simple measures will prevent its entrance. G; E. Stone. *Am Gas Light J* 105:293-4 N 6 '16

Bibliography

- Bibliography on the effect of sulphur dioxide on vegetation and animal life. *U S Bur Mines Bul* 98:503-20 '15

Plants, Effect of light on

- Effect of light on plants. H. Wagner. *il Sci Am S* 81:204-5 Mr 25 '16

Plants, Luminous

- Production of light by animals. U. Dahlgren. *il J Fr Inst* 181:109-25 Ja '16

Plants, Photography of. See Photography of plants**Plaster and plastering**

- Concrete surfaces plastered and grouted. A. M. Wolf. *Concrete Cem* 8:38-9 Ja '16
 Furring walls and plastering direct in concrete house construction. *Concrete Cem* 8:36-7 Ja '16
 Repairing plastered walls in Australia. *Bldg Age* 38:50 Ag '16

See also Plaster work, Decorative; Stucco

Tables, calculations, etc.

- Standard rules for measuring plaster. *Bldg Age* 38:30-1 Ja '16
 Time-saving table for plasterers. P. H. Bosworth. *Concrete* 8:173 Ap '16

Plaster work, Decorative

- Decorative plaster work. A. D. F. Hamlin. *il Brickb* 25:269-73, 292-6 O-N '16
 Old English plaster work. J. W. Overend. *il Brickb* 25:127-30 My '16

Plastic flow. See Plasticity**Plasticine**

- Modeling clay as an adjunct to the foundry. C. Vickers. *il Foundry* 44:68-70 F '16

Plasticity

- Laws of plastic flow; abstracts. E. C. Bingham. *J Fr Inst* 181:845-8 Je '16; *Sci Am S* 82:779 J1 29 '16; *Met & Chem Eng* 15:263-4 S 1 '16

Plate metal work. See Plates, Iron and steel**Plate printing**

- Standardizing plates for colorwork. *il Inland Ptr* 57:240 My '16

Plates, Boiler. See Boiler plates**Plates, Iron and steel**

- New plate and angle heating furnaces installed at the Cramp's shipbuilding plant, Philadelphia. *il Int Marine Eng* 21:422-3 S '16

See also Boiler plates

Plating

Metal content of plating solutions. C: H. Proctor. Metal Ind n s 14:113 Mr '16
Plater's recollections. J. Birbaum. Metal Ind n s 14:298-9, 476-7 Jl, N '16 (to be cont)
Preventive measures against spotting out. F. Ottman. Metal Ind n s 14:153-4, 241-5, 337-8 Ap, Je, Ag '16

See also Bronzing; Copper plating; Electroplating; Galvanizing; Metal coating; Nickel plating; Silver plating; Tinning

Plating racks

Resisto plating racks and hooks. F. W. Hobbs. Metal Ind n s 14:263 Je '16

Platinum

Development of practical substitutes for platinum and its alloys, with special reference to alloys of tungsten and molybdenum. F. A. Fahrenwald. il diags Am Inst Min E Bul 109:103-49 Ja '16; Summary. Met & Chem Eng 14:339 Mr 15 '16
Discovery of platinum in Spain. Eng & Min J 100:996; 101:141 D 18 '15, Ja 15 '16
Discovery of platinum in Spain. R. Honey. Metal Ind n s 14:14 Ja '16
Further experiments on the volatilization of platinum. G. K. Burgess and R. G. Waltenberg. J Ind & Eng Chem 8:487-90 Je '16; Summary. J Fr Inst 181:848-9 Je '16
Melting of platinum. C. M. Hoke. il Metal Ind n s 14:375-7, 470-2 S, N '16 (to be cont)
Platinum production in 1915. Eng & Min J 102:780 O 28 '16
Platinum statistics. Eng & Min J 101:46 Ja 8 '16
Silver-palladium alloy, substitute for platinum, patented by P. R. Heyl. Met & Chem Eng 14:164 F 1 '16
Solution of platinum in aqua regia. C. M. Hoke and R. J. Moore. diags Metal Ind n s 14:296-8 Jl '16
Sources of platinum; abstract. J Fr Inst 182:551-2 O '16
War importance of platinum. Eng & Min J 102:385-6 Ag 26 '16

Player pianos. See Piano players

Pliotron

Pliotron oscillator for extreme frequencies. W: C. White. il Elec Gen Elec R 19:771-5 S '16; Abstract. Elec W 68:774-5 O 14 '16

Plows, Motor. See Motor plows

Plumbers

Constructive instruction. F. W. Page. Metal Work 85:315+ Mr 3 '16
Don'ts for plumbers. Metal Work 84:750 D 10 '15
Good advice given to master plumbers. S. S. Shepard. Metal Work 85:757-8 Je 2 '16
Master plumber and the judge. E: T. Wade. Dom Eng 73:427 D 25 '15
Men who should not be in the plumbing business. G. W. Hill. Dom Eng 73:340-1 D 11 '15
Musings on plumbing and plumbers of today and sixty years ago. D: Whiteford. Dom Eng 73:436-7+ D 25 '15
Plumber—his social and financial standing in the business world. J. C. Bixby. Dom Eng 76:400-1 S 16 '16
Plumbers in the war game. Metal Work 85:122 Ja 21 '16
Plumbers of United States should adopt title of sanitary engineers. E. H. Russell; G. F. Frankland. Dom Eng 74:394-5 Mr 25 '16
Plumbers or sanitary engineers? N. T. Binks. Eng Rec 74:270 Ag 26 '16
Policy of the plumbers' organization. J. S. Cassidy. Metal Work 85:442-3 Mr 31 '16
Portland plumbers condemn newspaper editorial. O. G. Hughson. Dom Eng 73:300 D 4 '15

See also Plumbing; Plumbing trade

Licenses

Licensed plumber sign in New York state. Dom Eng 77:223 N 18 '16

Plumbers, National association of master. See National association of master plumbers

Plumbers' associations

Better business methods is live topic at convention of Kentucky master plumbers. Dom Eng 75:204-6 My 13 '16

Big idea in making meeting notices draw. S. H. Pool. Metal Work 86:680-1 D 1 '16 (to be cont)

California master plumbers 15th annual convention in Yosemite valley. il Dom Eng 75:332-4 Je 10 '16

Florida master plumbers' convention, Jacksonville, May 29. Dom Eng 75:334-5 Je 10 '16

Indiana master plumbers' association to be known as Indiana society of sanitary engineers. Dom Eng 74:301-5 Mr 4 '16

Iowa master plumbers 28th annual convention, Clinton, Feb. 22-23. Dom Eng 74:267-9 F 26 '16

Loose leaf accounting for state secretaries of master plumbers' associations. Metal Work 85:610-11 My 5 '16

Maine master plumbers hold outing in Portland harbor, July 17. Metal Work 86:125-6 Jl 28 '16

Maine master plumbers' 7th annual convention, Lewiston, Feb. 16. Dom Eng 74:269 F 26 '16

Massachusetts master plumbers discuss important trade problems at fall convention. Dom Eng 77:13-15 O 7 '16

Massachusetts plumbers' quarterly convention, Springfield, Sept. 28. Metal Work 86:447-8 O 6 '16

Nebraska master plumbers' annual meeting, Grand Island, Feb. 10-11. Dom Eng 74:237-8 F 19 '16

New Jersey master plumbers 15th annual convention, Newark, May 22-24. Dom Eng 75:301-3 Je 3 '16; Metal Work 85:747-9 Je 2 '16

Ohio master plumbers hold 25th annual convention. Metal Work 85:261-3 F 18 '16

Pennsylvania master plumbers oppose proposed state plumbing code as inadequate. Dom Eng 75:201-3 My 13 '16

What is your association doing to make its meetings interesting? Metal Work 86:651-3 N 24 '16

Plumbing

Air lock stops flow at fixtures. plan Metal Work 85:477 Ap 7 '16

Effect of sewer gas and simplified plumbing. N. S. Thompson. plan Metal Work 86:495-6 O 20 '16

Efficient plumbing systems for small houses. plans Metal Work 84:839-41 D 31 '15

Equipment of Louisville office building. il plans Metal Work 85:371-4 Mr 17 '16

Good plumbing essential to good health. Metal Work 85:522-3 Ap 14 '16

Harvard prize in plumbing. Dom Eng 76:69 O 21 '16

Heating and plumbing systems in a public natatorium in Chicago. il plan Dom Eng 77:36-7 O 14 '16

Helps for beginners in joint wiping. il plan Metal Work 86:371-2 S 22 '16

Landscape plumbing in California. A. C. Shaver. il Metal Work 85:806 Je 16 '16

Miners' wash and change houses. J. H. White. il U S Bur Mines Tech Pa. 116:15-22 '15; Same. Metal Work 85:223-5 F 11 '16

Municipal swimming pool, Pullman, Ill., has unique features. il Metal Work 85:33-6 Ja 7 '16

Necessity of sanitary plumbing. W. C. Groeniger. Metal Work 86:351-2 S 15 '16; Same. Dom Eng 76:362 S 9 '16

Need of public comfort stations; reminiscences of old and modern plumbing. D: A. Calhoun. Metal Work 86:211 Ag 18 '16

Nelson prizes for essays on the practice or theory of plumbing. Dom Eng 76:328 S 2 '16

New comfort stations under Public Library, Chicago. il plans Metal Work 85:119-22 Ja 21 '16

Plumbing and heating details of plunges. diags Metal Work 84:729-30, 837-8; 85:188-9, 350-1, 633-5 D 10, 31 '15, F 4, Mr 10, My 12 '16

Plumbing and heating in Illinois' new state penitentiary at Joliet. Metal Work 86:321 S 8 '16

Plumbing and heating systems in a new municipal bath house being built in Chicago. il plan Dom Eng 77:214-15 N 18 '16

Plumbing and heating systems in new jail, borough of Bronx of Greater New York. il diags plans Metal Work 86:240-3, 301-3 Ag 25, S 8 '16

Plumbing—Continued

- Plumbing and piping on the municipal pier recently completed at Chicago. *il* *diags* Dom Eng 76:286-9 Ag 26 '16
- Plumbing equipment of small country house. *plan* Metal Work 86:464-5 O 13 '16
- Plumbing, heating and ventilating in the new Illinois state penitentiary being built at Lockport near Joliet. *il* *diags* *plan* Dom Eng 77:176-7 N 11 '16
- Plumbing in the record and office building of the Chicago and Northwestern railway. *plan* Dom Eng 76:388-9 S 16 '16
- Plumbing installation in the new Edgewater Beach hotel at Chicago. *il* *plan* Dom Eng 76:252-3 Ag 19 '16
- Plumbing installation in the Yale club building in New York city. E. R. Porter. *diags* *plans* Dom Eng 76:56-8, 89-91 J1 8-15 '16
- Plumbing of the Latonia jockey club. K. C. Cardwell. *il* Dom Eng 76:121 J1 22 '16
- Plumbing standards in New England cities; discussions and reports at National housing conference. Dom Eng 77:81 O 21 '16
- Plumbing system in the South Shore country club at Chicago, Illinois. *il* *plan* Dom Eng 76:456-8 S 30 '16
- Plumbing work in department store rest room. *il* *diag* *plan* Metal Work 85:243-7 F 18 '16
- Plumbing work in Pittsburgh comfort station. *il* *plan* Metal Work 85:469-71 Ap 7 '16
- Prizes for plumbing theses. Eng Rec 74:278-9, 304 S 2 '16; Same. Metal Work 86:367 S 22 '16
- Random notes of a master plumber. *diags* Metal Work 85:704-5 My 26 '16
- Revising some plumbing traditions; prize essay. W. Goettling. *diags* Dom Eng 77:72-6, 107-10, 143-4 O 21-N 4 '16; Same. Metal Work 86:559-63, 587-91 N 3-10 '16
- Sanitary equipment of gas plant wash room. *il* *plan* Metal Work 85:281-2 F 25 '16
- Sanitary equipment of industrial buildings. H. L. Alt. *diags* Brickb 25:243-6 S '16
- Sanitary plumbing in Scottish schools. J. Y. Dunlop. *il* *diags* Metal Work 85:409-11 Mr 24 '16
- School sanitation. H. L. Alt. *diag* *plans* Brickb 25:167-70 J1 '16
- Supplying fixtures in 36-story building. *diag* Metal Work 85:859-60 Je 23 '16
- Trap seals of vent system broken. *diag* Metal Work 85:67 Ja 7 '16
- Unique plumbing equipment in Astor market, New York city. *il* *plan* Metal Work 84:711-13 D 3 '15
- Where and how to install floor drains. E. R. Porter. *diags* Dom Eng 74:37-8 Ja 8 '16
- Where unscientific plumbing gives absolute satisfaction. H. L. Alt. *diag* Dom Eng 75:70-1 Ap 15 '16
- Work of plumber praised by W: C. Gorgas who reclaimed Panama Zone. Dom Eng 74:73 Ja 15 '16
- See also* Drainage, House; Gas fitting; Heating; Hot water supply; Lavatories; Lead burning; Pipe fittings; Pipe joints; Plumbers; Plumbing fixtures; Plumbing inspection; Plumbing supplies; Plumbing trade; School houses—Toilet rooms; Sewage disposal; Sewer pipes; Sewerage; Shower baths; Sinks; Solder and soldering; Steam pipes; Toilet rooms; Urinals; Water closets; Water hammer; Water pipes; Water supply, Rural

Accounting

See Plumbing trade—Accounting

Estimates

- Aid for merchant mechanics in office work. *diag* Metal Work 85:432-3, 672, 778; 86:17-18, 47-9+ Mr 31, My 19, Je 9, J1 7-14 '16
- Gambling in estimating. G. W. Hill. Dom Eng 74:47-8 Ja 8 '16

Inspection

See Plumbing inspection

Law

See Plumbing laws and regulations

Standards

- Industrial plumbing standards. H. L. Alt. *diags* Dom Eng 76:187-9, 324-5, 425-7; 77:217-19 Ag 5, S 2, 16, N 18 '16

Study and teaching

- How Wisconsin teaches the theory and principles of plumbing and sanitation. Dom Eng 76:378-9+ S 9 '16
- How Wisconsin trains its master plumbers. F. R. King. *diags* Metal Work 86:169-72 Ag 11 '16
- Negroes and Indians learn rudiments of trades. W: A. Aery. *il* Metal Work 85:303-6 Je 16 '16
- Plumbing courses start in Minneapolis. Metal Work 86:681+ D 1 '16
- Successful year for night school plumbing class in Paterson, N. J. Dom Eng 74:72 Ja 15 '16
- Technical training for the plumber. J. E. Taggart. Metal Work 86:8 J1 7 '16

Traps

- Lead grease trap. Metal Work 85:679-80 My 19 '16
- Trouble with grease in septic tank. *diag* Metal Work 85:258-9, 321, 387 F 18, Mr 3, 17 '16

Plumbing contracts

- Louisville master plumbers' new rules in bidding on contracts. Dom Eng 76:294-5 Ag 26 '16
- 160 to 1 shot. H. W. Nelson. Dom Eng 76:60-8 J1 8 '16

Plumbing fixtures

- California sanitary enameled ware plant. *il* Metal Work 86:273-4 S 1 '16
- Lavatory water regulator. *il* Metal Work 84:848 D 31 '15
- Pres-toe-ped lavatory hot and cold water supply. *il* Dom Eng 74:118 Ja 22 '16
- Sanitary fixtures at building show on display in Cleveland. *il* Metal Work 85:360-1 Mr 10 '16

See also Plumbing—Traps; Sinks; Urinals; Water closets

Plumbing inspection

- Controlling water piping installation. Metal Work 86:611-12 N 17 '16
- Plumbing inspectors in Texas advise the state on plumbing. Dom Eng 73:336-7 D 11 '15

Plumbing laws and regulations

- Bath tub and its installation. E. R. Porter. *diags* Dom Eng 75:194-5, 229-30 My 13-20 '16
- Champaign's new plumbing ordinance. Dom Eng 74:366-7; 75:7, 138, 168-9, 296-7, 361-2 Mr 18, Ap 1, 29-May 6, Je 3, 17 '16
- Cleveland's new plumbing code. Metal Work 86:687 D 1 '16
- Distribution of signs to New York plumbers. Metal Work 86:289 S 1 '16
- How to determine the size of tap and meter. J. Klein. Am Water Works Assn J 2:735-8 D '15
- Louisville architects to furnish plans to plumbers. Metal Work 86:288 S 1 '16
- Method of computing size of house drain; requirements of plumbing codes in various cities compared. J. Graham. Dom Eng 74:194-6 F 12 '16
- Minnesota's need of a state plumbing code. J. O'Donnell. Dom Eng 77:48 O 14 '16
- New fee system for plumbing permits in Minneapolis, Minnesota. J. O'Donnell. Dom Eng 76:466-7 S 30 '16
- New plumbing ordinance of Auburn, N. Y. Dom Eng 77:263-4 N 25 '16
- New sanitary regulation for Washington, D. C. Dom Eng 73:359-60 D 18 '15
- One-piece lavatory, its construction and installation. E. R. Porter. *diags* Dom Eng 74:226-8, 258-60, 295-7 F 19-Mr 4 '16
- Plumbing code and control of plumbers. S. G. Highland. *il* Am Water Works Assn J 2:762-72; Discussion. 772-88 D '15
- Plumbing code and control of plumbers; with discussion. Am Water Works Assn J 3:692-8 S '16
- Plumbing ordinance of Muscatine, Iowa. Dom Eng 77:77-8, 185-7 O 21, N 11 '16
- Progress in state regulation of plumbing in Wisconsin. Dom Eng 74:177 F 5 '16
- San Antonio's new plumbing ordinance. Dom Eng 74:13-14, 49-51, 76-7 Ja 1-15 '16
- Selecting plumbing stacks on a service basis. *diags* Metal Work 85:584-5 Ap 28 '16
- Various types of kitchen sinks. E. R. Porter. *diags* Dom Eng 74:390-1 Mr 25 '16

Plumbing laws and regulations—Continued

Various types of laundry trays. E. R. Porter. diags Dom Eng 75:96-7 Ja 14 '16
 Water supply to dwellings and large buildings. J. Graham. diags Dom Eng 76:357-8 S 9 '16
See also Plumbing inspection

Plumbing shops

Combination shop in farming community. il Metal Work 85:90-2 Ja 14 '16
 Combination shop in town of 8000 population. il Metal Work 85:709-10 My 26 '16
 Competitive shops in country town combine. Metal Work 84:784-5 D 17 '15
 Factors in Michigan combination shop's success. il plan Metal Work 85:856-8 Je 23 '16
 Jersey combination shop's efficient service: Horace Beaumont, Paterson. il Metal Work 85:58-63 Ja 7 '16
 Modern power machinery profitable. il Metal Work 85:15 Ja 7 '16
 Paying dividends with a combination shop. il Metal Work 85:13-15 Ja 7 '16
 Plumber Santa Claus visits Johns' family. Metal Work 84:766-7 D 17 '15
 Plumbing and heating shop in Evanston, Illinois. il plan Metal Work 85:23-5 Ja 7 '16
 Sales methods and service control success. il Metal Work 85:676-7 My 19 '16
 Selling specialties cuts cost. il Metal Work 85:36 Ja 7 '16
 Showrooms as seen by a salesman. Metal Work 85:352 Mr 10 '16

Plumbing supplies

Among the exhibitors and salesmen of the 34th National association of master plumbers convention. il Dom Eng 76:16-23 Jl 1 '16; Metal Work 85:901-5 Je 30 '16
 Among the jobbers of the early days. Dom Eng 73:434-5 D 25 '15
 Co-operation between wholesaler and retailer as applied to the plumbing business. J. R. Steneck. Dom Eng 74:173-5 F 5 '16
 Eastern supply association discusses plumbing supply trade at meeting, June 14. Metal Work 85:864-5 Je 23 '16

See also Plumbing shops; Plumbing trade

Plumbing trade

Aid for merchant mechanics in office work. Metal Work 85:380-1, 432-3, 520, 646, 672, 778; 86:17-18, 47-9+, 148-9, 282-3, 378-9, 440 Mr 17, 31, Ap 14, My 12-19, Je 9, Jl 7-14, Ag 4, S 1, 22, O 6 '16
 Borrowing. J. E. Drury; F. W. Herrick. Metal Work 85:795 Je 9 '16
 Business co-operation in the plumbing trade. N. O. Nelson. Dom Eng 75:401-3 Je 24 '16
 Constructive policy. G. W. Hill. Dom Eng 74:298 Mr 4 '16
 Co-operation between wholesaler and retailer as applied to the plumbing business. J. R. Steneck. Dom Eng 74:173-5 F 5 '16
 Co-operative work of national organizations. Metal Work 85:26-8 Ja 7 '16
 Cost of delivering plumbing material to the job. J. E. Jordan. Metal Work 85:795 Je 9 '16
 Department store competition in the plumbing trade. A. Mueller. Dom Eng 75:304 Je 3 '16
 Discussion on the question of selling plumbing goods without installing them. Dom Eng 74:329 Mr 11 '16
 Extent of the plumbing and heating industries. Dom Eng 73:393-4 D 25 '15
 Fair play in the plumbing business. R. E. Dockham. Dom Eng 77:222-3 N 18 '16
 Henry Johnson. W: R. Marshall. Dom Eng 77:112-14 O 28 '16
 How not to go into the plumbing business. W: R. Marshall. Dom Eng 76:398-400 S 16 '16
 Idea for increasing sales and featuring service in the plumbing and heating business. Dom Eng 77:38 O 14 '16
 Leading Ohio newspapers comment on Domestic engineering's articles. Dom Eng 74:196 F 12 '16
 Literary Digest comments upon "Questioning the plumber's bill." Dom Eng 74:39 Ja 8 '16
 No profit in extras. G. W. Hill. Dom Eng 74:8 Ja 1 '16
 Pneumatic water supply business. Metal Work 86:71-2 Jl 21 '16
 Profit eating parasite in the plumbing business. G. W. Hill. Dom Eng 73:298-9 D 4 '15

Reason why he refused the bargain. G. W. Hill. Dom Eng 75:136 Ap 29 '16
 Retired plumber's advice to beginners. D. L. Hanson. il Dom Eng 68:224-6; 69:104-6, 192-4, 324-6, 401-3; 70:236-8, 406-8; 71:98-100, 250-2; 72:257-8, 372-4; 73:138-40, 268-70, 420-1; 74:70-2, 168-70, 264-6, 330-2; 75:8-10, 102-4, 232-4, 364-6; 76:122-4, 260-2, 326-8; 77:44-6, 182-4 Ag 22, O 24, N 14, D 12, 26 '14, F 20, Mr 27, Ap 24, My 29, Ag 28, S 25, O 30, N 27, D 25 '15, Ja 15, F 5, 26, Mr 11, Ap 1, 22, My 20, Je 17, Jl 22, Ag 19, S 2, O 14, N 11 '16
 Reverse of a master plumber. il Dom Eng 73:422-4 D 25 '15
 Review of the old year's business with forecast for the new. Dom Eng 73:390-2 D 25 '15
 Sales talks. W: R. Marshall. Dom Eng 73:301-2, 425-6; 74:41-2, 103-4, 202-3, 299-300, 362-3; 75:72-4, 166-7, 299-300, 398-9 D 4, 25 '15, Ja 8, 22, F 12, Mr 4, 18, Ap 15, My 6, Je 3, 24 '16
 State conference without convention. Metal Work 85:541 Ap 21 '16
 Survey of business of thirty-six plumbing establishments in Minneapolis. J. O'Donnell. Dom Eng 75:106-8 Ap 22 '16
 Trade conditions in 1915, and outlook for 1916, as seen by plumbing and heating contractors, manufacturers and jobbers of plumbing and heating supplies. Dom Eng 73:394-418 D 25 '15
 Trade journals aid in securing business. W. B. Metzger. Metal Work 84:795 D 24 '15
 Who should pay various shipping charges? H. F. Baillet. Metal Work 86:154-5 Ag 4 '16

See also Plumbing fixtures; Plumbing shops; Plumbing supplies

Accounting

Bookkeeping hints for the small plumber. W. A. Fink. Dom Eng 76:125-6, 190-1, 257-8 Jl 22, Ag 5, 19 '16
 Figuring overhead correctly aids success. W. A. Fink. Metal Work 85:311-12 Mr 3 '16
 Keeping accounting work at a minimum. Metal Work 86:502-3 O 20 '16
 Labor overhead. Metal Work 85:16 Ja 7 '16
 Overhead expense in combination shops. H. F. Baillet. Metal Work 85:5-6 Ja 7 '16
 Practical cost system for combination shop. Metal Work 85:87-8, 226-7, 551-2 Ja 14, F 11, Ap 21 '16

Advertising

Advertisement of Wisconsin state association of master plumbers. Metal Work 85:170 Ja 28 '16; Same. Dom Eng 74:176 F 5 '16
 Advertising cards bring business. il Metal Work 85:132 Ja 21 '16
 Advertising suggestions for the plumber and fitter. W. A. Fink. Dom Eng 73:369-70; 74:106-7, 232-3; 75:397 D 18 '15, Ja 22, F 19, Je 24 '16
 Advertising system for local newspapers. Metal Work 85:47-8 Ja 7 '16
 Boosting business by mail advertising. E. Stern. Metal Work 85:283-4 F 25 '16
 Impressive methods of advertising. Dom Eng 73:433 D 25 '15
 Making the most of the movies. Dom Eng 73:337-8 D 11 '15
 Name and the trade. Dom Eng 74:45-6 Ja 8 '16
 Prizes awarded in our newspaper advertising contest. Dom Eng 74:146-7 Ja 29 '16
 Sales talks. W: R. Marshall. Dom Eng 73:425-6 D 25 '15
 Sanitary lectures before club women. Dom Eng 74:4 Ja 1 '16
 Southern firm profits by float advertising. il Metal Work 85:111-12 Ja 14 '16

Plush

Wool plush coatings. Textile World 51:1389+ Mr 11 '16

Plymouth, Massachusetts**Water supply**

Warning the public against overdrawing a reservoir. A. E. Blackmer. Eng N 74:1163 D 16 '15

Pneumatic chucks. See Chucks, Pneumatic**Pneumatic hammers**

Design of pneumatic hammer for reclaiming scrap. Ry Mech Eng 90:476 S 16

Pneumatic hammers—Continued

Reclaiming material at local shops. E. A. Murray. *il* diags Ry Age (Mech ed) 89:632-3 D '15

Rivet cutter for freight car repairs. H. M. Brown. diags Ry Mech Eng 90:419-20 Ag '16

Rock-tunneling machine using pneumatic-hammer tools. *il* diag Eng N 76:340-1 Ag 24 '16

Steel-collaring machine. C. C. Semple. diags Eng & Min J 101:984 Je 3 '16

Pneumatic tires. See Tires (automobile)

Pneumatic tools

Modern equipment for the brass-working machine shop. P. W. Blair. *il* Metal Ind n s 14:22-4 Ja '16

Pneumatic rammers for trench tamping. *il* Sci Am 115:85 Jl 22 '16

Safety valve for air chucks. L. Fay. diags Mach 22:797-8 My '16

Shop pneumatic devices which effect great savings. *il* Iron Age 96:1522 D 30 '15

Testing pneumatic tools. J. D. Smith. diags Ry Mech Eng 90:413-14 Ag '16

Thor pneumatic tools in shipyards and dry docks. *il* Int Marine Eng 21:504-6 N '16

See also Pneumatic hammers; Tamping machines

Pneumatic transmission. See Compressed air

Pneumatic tubes

Handling materials in manufacturing plants. R. L. Streeter. *il* Eng M 51:240-6 My '16

Transport of material in the form of dust. T. C. Cloud. *Sci Am S* 81:299 My 6 '16

Vacuum ash-removal system. T. W. Reynolds. diags Elec W 66:1371-2 D 18 '15

Pneumatics

Can we locate the neutral zone in heated buildings? J. J. Blackmore. diags Am Soc Heat & V E 21:501-12 '15; Same. Heat & Ven 12:27-32 N '15; Discussion. Am Soc Heat & V E 21:512-18 '15

See also Air; Air flow; Gas flow; Gases

Pocket knives. See Knives

Poison ivy

Constituents of poison ivy. S. F. Acree. *Am Chem Soc J* 38:1421-5 Jl '16

Poisonous gases. See Gases, Asphyxiating

Poisonous plants

Poisonous principle of poison oak. J. B. McNair. *Am Chem Soc J* 38:1417-21 Jl '16

Poisons

Analysis of living matter through its reactions to poisons. A. R. Cushny. *Sci Am S* 82:335-6 N 18 '16

Aniline oil poisoning. A. H. Fiske and E. H. Green. *J Ind & Eng Chem* 8:573 Je '16

Aniline oil poisoning. W. W. Sanders. *J Ind & Eng Chem* 8:854-5 S '16

Dangers other than accidents in the manufacture of explosives. A. Hamilton. *J Ind & Eng Chem* 8:1064-7 N '16

Industrial poisoning from aniline and allied products. G. P. Adamson. *J Ind & Eng Chem* 8:1058-62 N '16

Relative toxicity of substances found in foods. A. N. Cook and S. Elliott. *J Ind & Eng Chem* 8:503-4 Je '16

See also Carbon monoxide

Pokers

Explosion of a poker. T. F. Connery. *il* Locomotive 31:51 Ap '16

Polariscope

Simple sodium lamp for polariscope. G. K. Foresman. *J Ind & Eng Chem* 8:165 F '16

Polarization (light)

Right-hand rotation. L. P. Sieg. *Sci Am* 114:79 Ja 15 '16

See also Polariscope

Poles

Concrete collars economical support for poles in swamp. *diag Eng Rec* 73:158 Ja 29 '16

Creosoted piling and poles. F. W. Cherrington. *il* Ry R 58:165-7 Ja 29 '16; Same cond. *Eng Rec* 73:105 Ja 22 '16; Same cond. *Ry Age* 60:122 Ja 21 '16

Defects affecting strength of wooden poles. *Elec W* 66:1370 D 18 '15

Harding pole-concreting process. *il* Elec R & W Elec'n 68:1090 Je 10 '16; *Elec W* 67:1377-8 Je 10 '16

How poles may be kept from sinking into swampy earth. *diag Elec W* 67:154 Ja 15 '16

How to figure the pull which any pole will withstand. *Elec R & W Elec'n* 69:689 O 14 '16

Labor-saving gig for distributing long poles. S. L. Foster. *il* Elec Ry J 47:411 F 26 '16

Northern white-cedar poles being produced under great difficulty. N. E. Boucher. *Elec R & W Elec'n* 68:495 Mr 18 '16

One-man pole-hoisting machine. W. E. Nees. *il* Elec Ry J 47:614-15 Mr 25 '16

Pivoted jack pulls or straightens poles. *il* Elec Ry J 48:691 S 30 '16; *Elec R & W Elec'n* 69:739 O 21 '16

Pole-treating plant of Lindsley company. *il* Elec R & W Elec'n 69:344-5 Ag 19 '16

Poles and pole-line construction. G. L. Lindsley. *Elec R & W Elec'n* 69:770-1, 815-16 O 28-N 4 '16

Results obtained from the preservative treatment of telephone poles. F. L. Rhodes and R. F. Hosford. *bibliog il* Am Inst E E Pro 34:2343-87 O '15; Abstract. *Elec W* 66:1031 N 6 '15; Discussion. *Am Inst E E Pro* 35:497-503 Ap '16

Tool for plumbing leaning iron poles. S. L. Foster. *il* Elec Ry J 47:276-7 F 5 '16

Western red cedar association issues standard treatment specifications. *Elec Ry J* 48:400-1 S 2 '16

See also Gin poles; Street lighting fixtures

Poles, Concrete

Hollow poles of reinforced concrete made by centrifugal process. H. Fischer. *diags Concrete* 9:121-6 O '16

Poles, Steel

Cast-iron sleeve for expanded steel poles. *il* Elec Ry J 47:466 Mr 4 '16

Concrete filler for reinforcing hollow steel poles. *diags Elec W* 67:43 Ja 1 '16

Expanded steel truss pole. A. J. Bates. *Elec Ry J* 47:207-8 Ja 29 '16

Inexpensive steel pole line. W. K. Palmer. *diag Elec Ry J* 47:702-3 Ap 8 '16

Reinforcing tubular poles internally. S. L. Foster. *diags Elec Ry J* 48:109-10 Jl 15 '16

Trolley poles inside of lighting standards at Salt Lake City. *il* Elec W 67:1433 Je 17 '16

Way of climbing latticed steel poles. *il* Elec W 67:97 Ja 8 '16

Police

Card index police work. *Munic J* 41:266 Ag 31 '16

Police alarms

Flashlight police signal system. G. D. Crain, jr. *Munic J* 40:724 My 25 '16

Police stations

Police headquarters building, Mount Vernon, N. Y.; views and plans. *Brickb* 25:pl 13-14 Ja '16

Polio-myelitis. See Infantile paralysis

Polishing wheels. See Grinding and polishing

Polygons

Lengths of sides of polygons. S. L. Cook. *Foundry* 44:62a F '16

Polymerism

Polymerization of Chinese wood oil. C. L. Schumann. *J Ind & Eng Chem* 8:5-15 Ja '16

Pompeii

Public bathhouse at Pompeii. R. I. Geare. *il* Arch Rec 39:94-6 Ja '16

Pontoon bridges

Design of railway pontoon bridge. H. J. Hansen. *pls W Soc E J* 21:7-25 Ja '16; Excerpts. *Eng Rec* 72:704-5 D 4 '15; Discussion. *W Soc E J* 21:25-32 Ja '16

Military pontoon bridges used in the United States army. P. E. Barbour. *diags Eng N* 76:156-7 Jl 27 '16

National defense—for engineer and contractor. P. S. Bond. *il* diags *Eng Rec* 73:394-7 Mr 18 '16

Pontoons

Big bridge caissons launched from submerging pontoon. A. Frederickson. *il* *Eng Rec* 74:150 Jl 29 '16

Pontoons—Continued

Canvas over timber frame converts ferry apron into pontoon. *il Eng Rec* 73:399 Mr 18 '16
Method and cost of moving a ferry transfer bridge. *diag Eng & Contr* 45:261 Mr 15 '16

Pooling of freight cars. See Freight cars, Pooling of**Pope, John Russell, 1874-**

Recent domestic architecture from the designs of John Russell Pope. H. D. Smith. Brickb 25:189-204, pl 113-126 Ag '16

Population

Population studies by Moore expectancy curve. G: H. Moore. *Eng N* 76:844 N 2 '16

Porcelain

American-made chemical glass and porcelain; discussion. *J Ind & Eng Chem* 8:952-4 O '16
Black-glazed porcelain. *il Elec R & W Elec'n* 68:124 Ja 15 '16

Constitution and microstructure of porcelain; abstracts. A. A. Klein. *Am Soc M E J* 38: 930-1 N '16; *J Fr Inst* 182:683-5 N '16; *Met & Chem Eng* 15:653 D 1 '16

Developments in domestic porcelain ware manufacture. *il Met & Chem Eng* 15:366 S 15 '16

Elasticity and strength of stoneware and porcelain. J. E. Boyd. *il Am Soc M E J* 38:222-6; Discussion. 38:227-9 Mr '16

Experiences in testing porcelain. E. E. F. Creighton. *Am Inst E E Pro* 35:865-70 Je '16; Discussion. 35:1471-3 O '16

Feldspars of the New England and north Appalachian states. A. S. Watts. *U S Bur Mines Bul* 92:68-71 '16

Manufacture of porcelain. *Sci Am S* 82:103 Ag 12 '16

Manufacturing electrical porcelain under modern conditions. *il Elec R & W Elec'n* 69:524-5 S 16 '16

Royal porcelain factory at Berlin. *il Sci Am S* 82:200 S 23 '16

Testing of electrical porcelain. E. E. F. Creighton and P. E. Hosegood. *il diags Gen Elec R* 19:479-83 Je '16

Tests on domestic laboratory porcelain. *Met & Chem Eng* 14:547 My 1 '16

See also Pottery

Porches

Enclosing a front porch. J: Wavrek, jr. *diags Bldg Age* 38:53-4 D '16

Porcupines

Conifers curse. R. E. Taft. *il Am For* 22:283-5 My '16

Porpoises

Playful porpoise and its economic value. R. G. Skerrett. *il Sci Am* 115:3 Jl 1 '16

Port Jervis, New York

Street lighting installation of Edison Mazda series lamps. H. A. Tinson and D. M. Diggs. *il map Gen Elec R* 19:225-9 Mr '16; Same. *Munic Eng* 51:5-8 Jl '16

Portable buildings. See Buildings, Portable**Portable bungalows.** See Bungalows, Portable**Portable electric plants.** See Electric plants, Portable**Portable kitchens.** See Kitchens, Portable**Portable machine shops.** See Machine shops, Portable**Portable railroads.** See Railroads, Portable**Portable towers.** See Towers, Portable**Portable tracks.** See Tracks, Portable**Portage railway in Canada.** *il Eng N* 74:1225 D 23 '15**Portals.** See Doorways**Portland, Maine****Bridges**

Design features of a reinforced concrete and steel viaduct between Portland and South Portland, Maine. *diags Eng & Contr* 45:368-70 Ap 19 '16

Great variety in design reduces cost of new Portland harbor bridge. *il diags Eng Rec* 73: 319-22 Mr 4 '16

Portland, Oregon

Precise-level survey of the city. W. P. Hardesty. *il diags Eng N* 76:55-8 Jl 13 '16

Fire bureau

Fire prevention in Portland. H. White. *il Munic J* 40:197-8 F 10 '16

Streets

Replating a city area. C. F. Fisher. *plans Munic J* 40:892-3 Je 29 '16

Standard pavement sections. *diags Eng & Contr* 46:108 Ag 2 '16

Portland cement. See Cement**Portland cement association**

If you don't see what you want, ask for it; library service of Portland cement association. *Concrete* 9:140 N '16

Joint operation of research laboratory planned. *Eng Rec* 74:496 O 21 '16

Laboratory work of the Portland cement association. *Concrete* 9:sup37-8 O '16

Portland railway, light & power company

Portland railway and light valuation. *Elec W* 67:1455-6 Je 24 '16

Porto Rico. See Forests and forestry—Porto Rico**Ports**

Competing marine terminals at seaports. H. M. Harding. *il Int Marine Eng* 21:455-8 O '16

Free ports on the Panama Canal Zone. W. Neilsen. *Am Ind* 17:29-30 S '16

Galvan port. Bahia Blanca, Argentine. C: A. Trery. *Engineer* 120:636 D 31 '15

Relation of railroads to foreign trade. F. Harrison. *Ry Age* 60:283-6 F 18 '16; Excerpts (Few well equipped ports held to be preferable to many poorly equipped). *Eng Rec* 73: 209 F 12 '16

Valparaiso port works. *map Engineer* 121:190-1 Mr 3 '16

See also Docks; Freight handling; Harbors; Piers; Shipping; Terminals

Post office buildings

Our stupid and blundering national policy of providing public buildings. C: H. Whitaker. *Am Inst Arch J* 4:96-105 Mr '16

Portfolio of current architecture. *il Arch Rec* 39:369-71 Ap '16

United States post office and court house, Denver, Colo. *il Arch & Bldg* 48:54, pl 22-25 Ap '16

U. S. post office building, Waukegan, Ill.; views and plans. *Brickb* 25:pl 15 Ja '16

Post office employees

Career for boys in the British post office. *Am Ind* 16:23, 26 D '15

Post roads

Shackleford post roads bill. P. H. Daly. *Sci Am* 114:529 My 20 '16

Postal service

See also Electric railway mail service; Mail handling; Post office buildings; Post roads; Railway mail service

Posters

Making prices on posters. B. Daniels. *Inland Ptr* 56:523-4 Ja '16

Posts

See also Fence posts; Lamp posts; Poles

Posts, Concrete

Concrete posts for Austrian hop gardens. *Concrete* 9:159 N '16

Making concrete posts for mail boxes. P. H. Wilson. *il diag Bldg Age* 38:59-60 Ja '16

See also Fence posts, Concrete; Lamp posts, Concrete

Potash

Alkali deposits of California and Oregon. T: M. Skinner, jr. *il Met & Chem Eng* 14:359-60 Ap 1 '16

Can an American potash industry be established? E. D. Koepping. *Met & Chem Eng* 15:385-7 O 1 '15

Development of our potash industry. F. M. DeBeers. *Met & Chem Eng* 15:508-10 N 1 '16

Facts about potash. H. A. Huston; F. M. DeBeers. *Met & Chem Eng* 15:615-16 D 1 '16

German potassium salts. A. Gradenwitz. *il Sci Am S* 80:372 D 11 '15

Potash—*Continued*

- Getting potash from brines. J Fr Inst 181: 732 My '16; Same. Sci Am 114:621 Je 10 '16
 Glimpses of new Pacific coast industries in the making. Il Met & Chem Eng 15:512-13 N 1 '16
 Obtaining potash from kelp. M. Woolley. Il Sci Am 115:214+ S 2 '16
 Possible sources of potash in America. F. K. Cameron. J Fr Inst 180:641-51 D '15; Same. Sci Am S 81:34-5 Ja 15 '16
 Potash as a by-product. Sci Am 115:343 O 7 '16
 Potash famine. T. H. Norton. Sci Am 114:146+ F 5 '16
 Potash from fir wood mill-waste. H. F. Zoller. J Ind & Eng Chem 8:105-8 F '16
 Potash from kelp. I. F. Laucks. Il Met & Chem Eng 14:304-8 Mr 15 '16; Abstract. J Fr Inst 181:725-6 My '16
 Potash from kelp in southern California. H. L. Glaze. Met & Chem Eng 14:355-7 Ap 1 '16
 Potash in banana stalks; abstract. R. H. Ellis. Met & Chem Eng 14:663 Je 1 '16
 Potash in Salduro salt deposit. H. S. Gale. Eng & Min J 102:780-2 O 28 '16
 Potash in Spain. Sci Am S 81:16 Ja 1 '16
 Potash mines in Alsace. Sci Am 114:153 F 5 '16
 Potash production begun in United States. Eng & Min J 101:32 Ja 8 '16
 Prospecting for potash in Texas. Eng & Min J 102:863 N 11 '16
 Recovering potash salts from wool. I. A. Hunter. Textile World 51:1385+ Mr 11 '16
 Searles Lake potash in 1916. Eng & Min J 100: 936 D 4 '15

Potassium carbonate. See Potash**Potassium chlorate**

- Manufacture of potassium chlorate. A. G. Betts. Met & Chem Eng 15:627 D 1 '16
 Unusual explosion in connection with potassium chlorate. F. E. Rowland. Il J Ind & Eng Chem 8:517-18 Je '16

Potassium chloride

- Hydrogen and chlorine ion activities of solutions of potassium chloride in 0.1 molar hydrochloric acid. H. S. Harned. Am Chem Soc J 38:1986-95 O '16

Potassium compounds

- Unnecessary waste of potassium compounds. J. R. Withrow. J Ind & Eng Chem 8:486-7 Je '16

Potassium dichromate

- Oxidation and reduction without the addition of acid; reaction between stannous chloride and potassium dichromate; a contribution to colloid-chemistry. M. Neidle and J. C. Witt. Am Chem Soc J 38:47-52 Ja '16

Potassium ferricyanide

- Coating for blue-print paper. diag Sci Am S 81:333 My 20 '16; Same. Arch & Bldg 48: sup18-19 S '16; Same cond. Eng Rec 73:585 Ap 29 '16

Potassium hydroxide

- Action of a solution of potassium hydroxide in alcohol on oxalic esters. N. C. Qua and D. McLaren. Am Chem Soc J 38:1803-9 S '16
 Efficiency of calcium chloride, sodium hydroxide and potassium hydroxide as drying agents. G. P. Baxter and H. W. Starkweather. Am Chem Soc J 38:2038-41 O '16

Potassium iodate

- Volumetric determination of tin by potassium iodate. G. S. Jamieson. J Ind & Eng Chem 8:500-2 Je '16

Potassium iodide

- Diffusion of iodine in potassium iodide solutions. G. Edgar and S. H. Briggs. diag Am Chem Soc J 38:253-9 F '16

Potassium permanganate

- Comparison of the permanganate methods for the determination of required oxygen. J. H. Sachs. J Ind & Eng Chem 8:404-6 My '16
 Oxidation of ethyl alcohol by means of potassium permanganate. W. L. Evans and J. E. Day. Am Chem Soc J 38:375-81 F '16
 Role of atmospheric oxygen in the oxidation of glucose with potassium permanganate in the presence of varying amounts of alkali; the products of oxidation. E. J. Witzemann. Am Chem Soc J 38:150-61 Ja '16

Potentiometers

- Chattock magnetic potentiometer. A. Campbell and D. W. Dye. diags Inst E E J 54:43-5 D 1 '15
 High-voltage potentiometer. H. J. Ryan. Il Am Inst E E Pro 35:1187-92 Ag '16
 Practical installation of the double combination potentiometer. M. Randall, F. R. v. Bichowsky and W. H. Rodebush. diags Am Chem Soc J 38:1266-70 Jl '16

Pottery

- Artistic pottery made in America. Il Sci Am S 82:296 N 4 '16
 Casting of clay wares. T. G. McDougal. diags U S Bur Mines Tech Pa 126:1-25 '16
 Elasticity and strength of stoneware and porcelain. J. E. Boyd. Il Am Soc M E J 38:222-6; Discussion. 38:227-9 Mr '16

*See also Porcelain***Poultry.** See Ducks**Powder, Smokeless.** See Smokeless powder**Powder magazines.** See Explosives—Storage**Powdered coal.** See Coal, Pulverized**Power**

- Power drives for ventilating fan operation. H. Bard. Il Metal Work 86:110-12 Jl 23 '16
 Power estimating; formula and curves derived as substitute for admiralty method of estimating power. L. A. Baier. Int Marine Eng 21:499-501 N '16
 Power required in rolling metals. C. E. Davies. diags Engineer 122:134-6 Ag 18 '16; Abstract. Iron Age 98:326 O 12 '16
 Power situation in Germany and Austria during the war. Power 43:831-3 Je 13 '16; Same. Sci Am S 82:15 Jl 1 '16
 Russia's power resources. Sci Am S 81:19 Ja 8 '16
 When the coal is gone, what then? J. P. Goode. Elec R & W Elec'n 68:187 Ja 29 '16
 World's supply of fuel and motive power. D. Clerk. Power 42:804-5 D 7 '15

See also Compressed air; Dynamometer; Electric power; Electric railroads; Engines; Horsepower; Hydroelectric power; Machinery; Mechanics; Mining engineering—Power; Power cost; Power plants; Power transmission; Steam; Water power

Power cost

- Central-station power effects saving in candy factory. H. C. Riggs. Elec R & W Elec'n 68:592-3 Ap 1 '16
 Characteristics of electric reversing mill. J. E. Jefferies. Elec W 68:951-2 N 11 '16
 Coal and ash handling at Grundy plant. L. V. Curran. Power 44:695 N 14 '16
 Contract price for mill power based on cost of coal. Elec R & W Elec'n 69:891-2 N 18 '16
 Co-relationship of factors affecting the cost of power. R. Trauttschold. charts Eng M 50: 860-8 Mr '16
 Cost of operating motors in lime plants and quarries. R. D. Donaldson. Elec W 68:326 Ag 12 '16
 Diesel-engine operation and upkeep data. L. W. W. Morrow. Elec R & W Elec'n 69:326-8 Ag 19 '16
 Diesel engines versus steam turbines for mine power plants. H. Haas. Il Am Inst Min E Bul 115:1171-83 Jl '16; Abstract. Am Soc M E J 38:674-5 Ag '16; Abstract. Iron Age 98:291 Ag 10 '16; Excerpts. Engineer 122:324 O 13 '16; Discussion. Am Inst Min E Bul 120:2213-22 D '16
 Electric motor saves \$200 over gasoline-engine costs. Elec R & W Elec'n 68:289 F 12 '16
 Electrical railways. H. M. Hobart. Engineer 120:606, 608, 628-9 D 24-31 '15
 Good showing of Cleveland municipal plant. Power 42:908-9 D 28 '15
 Graphic aid in figuring power bills. R. W. Parker. Elec W 67:1422 Je 17 '16
 Handling coal and ashes at Grundy plant. H. J. Edsall. Il plan Power 44:481-3 O 3 '16
 How analysis of load conditions permitted reduction of maximum demand. Elec W 68:717-18 O 7 '16
 Initial and operating costs of power plants. R. P. Kehoe. Power 44:304-5 Ag 29 '16

Power cost—Continued

- Monthly energy costs for small manufacturing plant. *il Elec W* 66:1314-15 D 11 '15
- New York Hall of records test. A. Williams. *Power* 43:411-12 Mr 21 '16
- New York Hall of records test; results. *Power* 43:361-2 Mr 14 '16
- Operating and cost data for electric railway power stations. *Elec W* 68:865-6 O 28 '16
- Operating costs in combined power and heating plants. C. L. Hubbard. *plans Eng M* 51: 869-78 S '16
- Power cost in paper mill. T. Wilson. *plans Power* 44:190-2 Ag 8 '16
- Power generation; report of committee of American electric railway engineering association. *Elec Ry J* 48:829-30 O 14 '16
- Power plant of the Burro mountain copper co. C. Legrand. *Am Inst Min E Bul* 117:1536 S '16
- Power with by-product recovery. T. R. Wolaston. *Engineer* 122:161 Ag 25 '16; *Abstract. Iron Age* 98:770 O 5 '16
- Proper current densities. B. B. Hood. *Met & Chem Eng* 15:571-3 N 15 '16
- Purchased power shows saving of \$1,500 yearly at Concord. *Elec R & W Elec'n* 68:507 Mr 18 '16
- Relation of water power to transportation. L. E. Stillwell. *Am Inst E E Pro* 35:561-74 My '16; *Abstract. Elec Ry J* 47:822-3 Ap 29 '16
- Relative value of private and purchased electric power for textile mills. F. W. Reynolds and D. Adams. *Am Soc M E J* 38:202-6 Mr '16; Same. *Textile World* 51:699, 713, 715, 779, 782 Ja 15 '16; Same cond. *Power* 43:90-2 Ja 18 '16; Discussion. *Am Soc M E J* 38:206-9 Mr '16; Excerpts. *Textile World* 51:2265+ My 6 '16
- School power plant. H. L. Alt. *plans Brickb* 25:99-101 Ap '16
- Seattle needs more electricity; a number of sites which can be paid for with utility bonds are offered to city. *Elec W* 67:251 Ja 29 '16
- Seventy-fourth street station, New York, and its new cross-compound turbines. H. G. Stott. *il Power* 43:733-4 My 23 '16
- Standardization of power-plant operating costs. H. B. Soper. *Power* 43:375-6 Mr 14 '16
- Standardization of power plant operating costs; with discussion. W. N. Polakov. *Am Soc M E J* 38:290-7 Ap '16; Same cond. *Power* 43:232-5 F 15 '16; Excerpts. *Iron Age* 97:142-3 Ja 13 '16; Excerpts. *Textile World* 51:999+ F 5 '16
- Station rated at 10,000 kw. produces energy at 6 mills. *Elec W* 67:99 Ja 8 '16
- Substation operating costs for a New England electric-railway system. *Elec W* 67:883-4 Ap 15 '16
- Transmission line to connect Massachusetts central stations. *Elec R & W Elec'n* 68:544 Mr 25 '16

See also Electric driving; Electric plants—Central stations vs. isolated plants

Power factor

- Correcting power factor; abstract. *diag Elec W* 68:380 Ag 19 '16
- Effects of power factor on voltage regulation. F. A. Annett. *diags Power* 44:85-7 Jl 18 '16
- Modern methods of correcting power factor. *diags Engineer* 121:497-8, 549-50; 122:25-6 Je 16, 30, Jl 14 '16
- Power factor explained. F. A. Annett. *diags Power* 44:4-7 Jl 4 '16
- Power factor meters. R. D. Gifford. *il diags Engineer* 122:149-50 Ag 13 '16
- Using garage synchronous motor to correct line power-factor. F. C. Taylor. *il diag Elec W* 67:600 Mr 11 '16

Power plants

- Aspects of boiler efficiency. H. J. Klotz. *Power* 43:420 Mr 21 '16
- Boston fish pier plant. *il Power* 43:537-8 Ap 18 '16
- Electrically driven paper mill. T. Wilson. *il diag plan Power* 43:756-62 My 30 '16
- How a basis may be established for comparing over-all power-plant efficiencies. H. A. Cozzens, jr. *Elec W* 67:433-4 F 19 '16
- Initial and operating costs of power plants. R. P. Kehoe. *Power* 44:304-5 Ag 29 '16

- Keeping tabs on the power-plant equipment. W. Sailes. *il Power* 43:401-2 Mr 21 '16
- Power-plant losses at high altitudes. A. V. Clarke. *Power* 43:515-16 Ap 11 '16
- Power-plant losses at high altitudes. C. W. Smith. *Power* 43:743 My 23 '16
- Power-station buildings; with discussion. J. N. Hatch. *Power* 43:492-4 Ap 4 '16
- Visiting new power plants. R. G. Hudson. *Power* 43:364-5 Mr 14 '16
- Waste in the management of public utility power plants. F. W. Collins. *Eng M* 49:888-93 S '15; Same. *Am Gas Light J* 104:108-9 F 14 '16
- Wentworth institute power plant course. C. L. Hubbard. *il Power* 44:152-5 Ag 1 '16
- See also* Boiler plants; Electric plants; Gas power plants; Hotels—Power plants; Hydroelectric plants; Steam plants

Piping

See Piping (power plants)

Power rates. *See* Electric power—Rates; Power cost

Power show. *See* National power show

Power squeezers. *See* Molding machines

Power transmission

- How combined silent chain and belt drive permitted carrying peak loads. S. Fisher. *diag Elec W* 67:1244 My 27 '16
- Operation of parallel and radial axles of a locomotive by a single set of cylinders. A. Mallet. *diags Am Soc M E J* 38:125-9 F '16; *Abstract. Ry Mech Eng* 90:15-17 Ja '16; *Conclusions. Ry R* 57:836-7 D 25 '15; Discussion. *Am Soc M E J* 38:129-34 F '16; Excerpts of discussion. *Ry Age* 60:19-20 Ja 7 '16; *Ry Mech Eng* 90:17-19 Ja '16
- Transmission losses cost money. G. D. Crain, jr. *Textile World* 51:57 D 4 '15
- Transmitting power by leather belting. R. T. Kent. *Iron Age* 97:527-33 Mr 2 '16

See also Belting; Cables; Chain gear; Compressed air; Electric distribution; Electric driving; Electric transmission; Gearing; Machinery; Pulleys; Rope driving; Shafting

Pratt institute, Brooklyn

Effect of technical education upon the leather industry. A. Rogers. *il Sci Am* 114:14-15 Ja 1 '16

Schools to train foremen for our chemical industries. *Eng & Min J* 102:799-800 O 28 '16

Precious metals

See also Gold; Platinum; Radium; Silver

Precious stones

- Precious stones in 1915. G. F. Kunz. *Eng & Min J* 102:800 O 28 '16
- Precious stones industry in the United States. *Sci Am S* 81:207 Mr 25 '16

See also Diamonds; Gems; Turquoise

Precipitation, Electric. *See* Electric precipitation

Precooling of fruit. *See* Fruit, Precooling of

Preparedness, Industrial. *See* United States—Industries and resources

Preparedness, Military. *See* United States—Army; United States—Defenses

Prescott, William Blair, 1863-1916

Sketch. por Inland Ptr 56:804-6 Mr '16

Preservation of wood. *See* Wood preservation

Preservatives (food). *See* Food preservatives

Press. *See* Associated press; Liberty of the press; Newspapers

Press association of India

Organization and its objects. *Inland Ptr* 57: 483 Jl '16

Presses

- Metalwood shell banding presses. *il Mach* 23: 82-3 S '16
- Niagara forming press. *il Mach* 22:343 D '15
- Pneumatic press for banding springs. *il Iron Age* 97:305 F 3 '16; *Iron Tr R* 58:297 F 3 '16; *Ry Mech Eng* 90:104 F '16
- Pneumatic scrap reclaiming press. *il Iron Age* 98:1222 N 30 '16
- Power briquetting press. *il Iron Age* 97:372-3 F 10 '16
- Power soldering press. *il Iron Age* 97:1435 Je 15 '16

Presses—Continued

- Press for baling light steel scrap. *il* Iron Age 97:651 Mr '16 '16
 Press for forming automobile parts. *il* Iron Tr R 57:1090 D 2 '15
 Press for stamping washers from sheets. *il* Iron Age 98:991-2 N 2 '16
 Pressing and stamping metals. O. Smith. *il* Eng M 51:855-68; 52:83-9 S-O '16
 Pressure developed by friction screw presses. F. J. W. Sparkuhl. *il* diag Mach 22:846-9 Je '16
 Punch press for making washers. *il* Ry Mech Eng 90:601 N '16
 Rating of punch presses. Mach 22:853 Je '16
 Sheet metal bending and forming press. *il* Metal Work 84:750 D 10 '15
 600-ton driving wheel press. *il* Iron Tr R 58:297 F 3 '16
 Toledo toggle drawing press. *il* Iron Tr R 59:890 N 2 '16
 2000-ton billet extrusion press. *il* Iron Age 97:889 Ap 13 '16

Presses, Hydraulic. See Hydraulic presses

Presses, Printing. See Printing presses

Pressure

- Pressure developed by friction screw presses. F. J. W. Sparkuhl. *il* diag Mach 22:846-9 Je '16
See also Atmospheric pressure; Earth pressure; Pressure measurement; Vapor pressure; Wind pressure

Pressure gages

- Compressibility of certain typical hydrocarbons, alcohols and ketones. T. W. Richards and J. W. Shipley. *diag* Am Chem Soc J 38:990-2 My '16
 German apparatus for measuring pressure and velocity of gases; abstract. E. Stach. *diag* Am Soc M E J 37:715-16; 38:91-2 D '15-Ja '16
 How gun pressures are measured. G. P. Jewell. *il* Sci Am 114:475 My 6 '16
 Mercury pressure gage. N. P. Goodrich. *diag* Eng & Min J 101:861 My 13 '16
 Pressure gage reading inches-ounces. *diag* Metal Work 86:372 S 22 '16
 Recording differential pressure gage. *il* Eng N 75:48 Ja 6 '16
 Testing pressure gages in refrigerating plant. T. G. Thurston. *Power* 43:375 Mr 14 '16

Pressure measurement

- Apparatus for determining soil pressures devised; abstracts. A. T. Goldbeck and T. B. Smith. *plans* Eng Rec 74:48 Jl 8 '16; Eng & Contr 46:180-1 Ag 23 '16; Eng N 76:339 Ag 24 '16
 Pressure of wet concrete on the sides of column forms. A. B. McDaniel and N. B. Garver. *il* *diag* Eng N 75:933-6 My 18 '16
See also Pressure gages

Presswork. See Printing, Practical—Presswork

Pribilof Islands

- Fur seals of the Pribilof Islands. *Sci* Am 114:154 F 5 '16

Price cutting

- Price maintenance. *Sci* Am 115:276 S 23 '16
 Problem of price-fixing. A. P. Nevin. *Am Ind* 16:12 F; 11 Mr; 18-19 Ap '16

Prices

- Advancing prices without notifying customers. E. J. Buckley. *Metal Work* 85:785 Je 9 '16
 Ascertaining the status of an industry. *Iron Age* 97:471-2 F 24 '16
 Fair recompense; boilers. D. J. Champion. *Iron Age* 97:1501 Je 22 '16
 Increases in prices of railway material. *Ry Age* 61:636-9 O 13 '16
 Increases in railroad material prices. E. J. Pearson. *Ry R* 59:637 N 4 '16
 Production and sales. H. L. Gantt. *Eng M* 50:593-600 Ja '16
 Railway supplies continue to advance in price. *Ry R* 59:3-5 Jl 1 '16
 Referendum ordered on maintenance of resale prices. *Elec R & W Elec'n* 68:299 F 12 '16
 Wholesale prices of leading articles in United States markets, January, 1913, to December, 1915. U S Bur For & Dom Com misc ser 30:1-14 '16

See also Coal prices; Price cutting; Railroads—Rates; Value

Prime movers. See Engines

Printers

- Can the value of travel-experience be preserved to the printer and his profession? C. J. Schott. *Inland Ptr* 58:53-4 O '16
 Oppression of printers and the liberty of printing. H. L. Bullen. *Inland Ptr* 58:86-8, 203-8 O-N '16
 Reputation, a neglected asset of the printing business. H. L. Bullen. *Inland Ptr* 57:230-2, 388-90, 533-5 My-Jl '16
 Value of travel to the printer. C. M. Hecker. *Inland Ptr* 57:621-4 Ag '16
 Views and practices regarding apprentices. W. H. Seed. *Inland Ptr* 56:474-7, 616-19, 760-1; 57:39-41 Ja-Apr '16

Printers' supplies. See Printing supplies

Printers' supplymen's club of Chicago

- Humanizing commercialism—the Printers' supplymen's club of Chicago. *Inland Ptr* 58:101-3 O '16

Printing

- Light and shadow in reproductive printing processes. J. St. C. McQuilkin and E. M. Keating. *il* *Inland Ptr* 58:57-60 O '16
 Typolith process—a new method of printing. *il* *Inland Ptr* 57:664 Ag '16

See also Advertisements; Calico printing; Letterheads; Linotype; Paper; Photography; Plate printing; Posters; Printers; Printing, Practical; Printing offices; Printing presses; Printing trade; Proofreading; Rotogravure; Show cards; Stationery; Textile printing; Title pages; Type; Typesetting; Typesetting machines

Bibliography

- Literature of typography. H. L. Bullen. *Inland Ptr* 57:635-9, 781-4; 58:86-8, 203-8 Ag-N '16

Exhibitions

- Exhibition of American printing in New York. S. H. Horgan. *il* *Inland Ptr* 57:238-9 My '16

History

- Master minds of type and press. J. S. Ritenour. *Inland Ptr* 56:491-2, 662-3, 807-8; 57:85-7, 204-5, 371-2, 517-18, 659 Ja-Ag '16
 Oppression of printers and the liberty of printing. H. L. Bullen. *Inland Ptr* 58:86-8, 203-8 O-N '16
 Quality in printing. F. W. Goudy. *Inland Ptr* 56:516-20 Ja '16

Patents

- Recent patents. A. Scheible. *il* *Inland Ptr* 57:491-3 Jl '16

Specimens

- Distinctive typography; an exhibit of the product of Taylor & Taylor, San Francisco, California. *Inland Ptr* 56:800a-800h Mr '16
 Examples of high-grade printing done by McGrath-Sherrell press, Boston, Massachusetts. *Inland Ptr* 58:64a-64h O '16
 Exhibit of the typographic work of Ellsworth Geist. *il* *Inland Ptr* 57:496a-496h Jl '16
 Reset typographic designs. *Inland Ptr* 57:80a-80h Ap '16
 Specimens. J. L. Frazier. *See* monthly numbers of the *Inland printer*

See also Advertisements; Christmas printing; Letterheads

Study and teaching

- Educational plan of Cleveland typographical union. *Inland Ptr* 57:93-4 Ap '16
 Printing as a means of education. K. M. Stilwell. *Inland Ptr* 57:325-30 Je '16

See also Printers

Great Britain

- Literature of typography. H. L. Bullen. *Inland Ptr* 57:635-9, 781-4 Ag-S '16

Japan

- Interview with S. Hoshino. *Inland Ptr* 56:636-7 F '16

Printing, Practical

- Printing 2,000,000 transfers a day; printing plant of the Brooklyn rapid transit system. *il* *Elec Ry J* 48:216-17 Ag 5 '16

Printing, Practical—Continued

Specialty-printing problems and how to overcome them. C. Martin. Inland Ptr 56:619-22, 762-4; 57:46-8, 186-8, 330-6 F-Je '16

Typewriter that prints advertising copy for printers. Sci Am 115:61 Jl 15 '16

Whether to make or buy; does it pay to do your own printing? E. S. Hanson. Factory 17:256-7 S '16

See also Color printing; Electrotyping; Ink; Linotype; Printing offices; Printing presses; Proofreading; Type; Typesetting

Accounting

Job-ticket and the job. B. Daniels. Inland Ptr 56:524-7 Ja '16

Costs

Cost and method. B. Daniels. See monthly numbers of the Inland printer

Effect of volume of printing on cost. B. Daniels. Inland Ptr 58:79-80 O '16

Increasing costs. B. Daniels. Inland Ptr 58:226-7 N '16

Making prices on posters. B. Daniels. Inland Ptr 56:523-4 Ja '16

One of the mysteries of binding; difference in cost between a twelve-page and sixteen-page booklet. B. Daniels. Inland Ptr 58:78-9 O '16

Dummies

Preparedness and dummies. L. E. Wollner. Inland Ptr 57:472-5 Jl '16

Imposition, etc.

Fundamental principles of imposition. R. E. Haynes. Inland Ptr 56:477-9 Ja '16

Magical tips on the black art—the penny-puller. C. R. Collins. Inland Ptr 58:188-9 N '16

Presswork

Precautions of good pressmanship. A. H. Cote. Inland Ptr 56:765-7 Mr '16

Pressroom. See monthly numbers of the Inland printer

Printing small sheets on large presses. E. W. George. Inland Ptr 56:764-5 Mr '16

See also Printing presses

Spacing

Automatic justification. Inland Ptr 56:683-4 F '16

Correct placing of groups on the page. J. L. Frazier. il Inland Ptr 57:497-8 Jl '16

Crowding. J. L. Frazier. Inland Ptr 57:641-4 Ag '16

Standards

Shadows of coming events. N. J. Werner. Inland Ptr 57:618-21 Ag '16

Printing, Textile. See Textile printing

Printing costs. See Printing, Practical—Costs

Printing ink. See Ink

Printing machinery

Specialty-printing problems and how to overcome them. C. Martin. diags Inland Ptr 57:330-6 Je '16

See also Calico printing; Linotype; Paper cutting machines; Printing presses; Typesetting machines

Printing offices

Electrical features of Youth's companion plant. il Elec R & W Elec'n 68:632-3 Ap 8 '16

Printing house of R. R. Donnelley & sons company, Chicago; view and plan. Brickb 25:247, pl 137 S '16

Screening and concrete plants for building use gravel from cellar excavation; building of Methodist book concern. Cincinnati, Ohio. W. R. Howard. il diags Eng Rec 73:483-4 Ap 8 '16

Steel frame of Printing Crafts building, New York, designed to prevent vibration. diags plan Eng Rec 73:46-7 Ja 8 '16

See also Newspaper offices

Management

Cost of management. B. Daniels. Inland Ptr 58:225-6 N '16

Indexed dump saves time and labor. J. Edwards. Inland Ptr 56:767-8 Mr '16

Job-ticket and the job. B. Daniels. Inland Ptr 56:524-7 Ja '16

Little neglects and large losses. Inland Ptr 57:41-3 Ap '16

Making business by making printing effective. R. Fennell. Inland Ptr 56:622-4 F '16

Valuation

Values of printing-offices. H. Hill. Inland Ptr 57:245-6 My '16

Printing presses

American intaglio printing-press company. il Inland Ptr 57:113 Ap '16

Automatic press operation. E. W. George. Inland Ptr 58:40-3 O '16

Descriptive outline of the Multisize rotary press. Inland Ptr 57:109-10 Ap '16

Developing influences—Henry F. Bechman. Inland Ptr 56:822 Mr '16

Job press versus cylinder. Inland Ptr 57:84 Ap '16

Machine that prints one hundred miles of printed matter in ten hours. O. T. Carliss. il Sci Am 115:259 S 16 '16

Master minds of type and press. J. S. Ritenour. il Inland Ptr 57:85-7, 204-5, 371-2 Ap-Je '16

Printing-press built from odds and ends. E. Powell. il Inland Ptr 56:496 Ja '16

Push-button control system for cylinder printing presses. il plan Elec W 67:561-2 Mr 4 '16

Rotary press proposition. B. Daniels. Inland Ptr 57:810 S '16

See also Printing, Practical—Presswork

Printing supplies

Federal trade commission investigates the trade in printers' supplies. W. Fawcett. Inland Ptr 56:811-13 Mr '16

Printing telegraph. See Telegraph, Printing

Printing trade

Building a profitable printing business. J. S. Vogel. Inland Ptr 58:185-8 N '16

Legal pitfalls of the printer. A. L. Feinstein. Inland Ptr 58:181-4 N '16

Selling printing by modern intensive methods. C. C. Casey. Inland Ptr 58:44-7 O '16

Specialty printing. C. Martin. Inland Ptr 57:764-6 S '16

See also Printers

Advertising

Physician, heal thyself. R. Ellis. Inland Ptr 58:177-81 N '16

Printers' advertising campaigns. il Inland Ptr 57:797-801 S '16

Prints. See Engravings

Prison life. See European war—Prison life

Prisons

Plumbing and heating in Illinois' new state penitentiary at Joliet. Metal Work 86:321 S 8 '16

Plumbing and heating systems in new jail, borough of Bronx of Greater New York. il diags plans Metal Work 86:240-3, 301-3 Ag 25, S 8 '16

Plumbing, heating and ventilating in the new Illinois state penitentiary being built at Lockport. il diags plans Dom Eng 77:174-8 N 11 '16

See also Convict labor; Reformatories

Private car lines

Privately-owned railway wagon. Engineer 121:471 Je 9 '16

Private tracks. See Railroads, Industrial

Probabilities

Element of chance in sanitation. G. C. Whipple. J Fr Inst 182:37-59, 205-27 Jl-Ag '16

Prodigal sun; how his wanderings may be exhibited in connection with building plans. il Sci Am 115:461 N 18 '16

Producer gas. See Gas; Gas manufacture and works; Gas producers

Professional advertising. See Professional ethics

Professional education

See also Architectural education; Technical education; Vocational education

Professional ethics

- American chemical society; majority report of the committee on professional ethics. *Am Chem Soc J* 38:sup110-12 N '16
- Making of the professions, by E; A. Ross. Review. *Am Inst Arch J* 4:441-7 N '16
- Question of advertising the profession of architecture. *Am Inst Arch J* 4:319-20, 371-5, 419-23 Ag-O '16
- Responsibility. *Am Inst Arch J* 4:151-3 Ap '16
- See also* Engineering ethics

Profiling

- Large production profiling machine. *il Iron Age* 97:138-9 Ja 13 '16

Profiliograph

- Instrument plots profiles of river and harbor beds. *il Eng Rec* 74:109 Jl 22 '16

Profit

- Profits from real estate sales. W. Mucklow. *J Account* 21:321-32 My '16

Profit sharing

- Appreciation as a factor in business building. Elec R & W Elec'n 69:905 N 18 '16
- Consolidated gas company of New York and affiliated companies adopt profit-sharing plan. *Am Gas Light J* 105:365 N 27 '16
- Profit-sharing and preparedness. C. E. Knoepfel. *Iron Tr R* 59:628-30 S 28 '16
- Profit sharing in lead and copper mining. H. A. Guck. *Eng & Min J* 101:612-13 Ap 1 '16
- Profit-sharing plan for Peoples gas light and coke company, Chicago. *Eng Rec* 74:609 N 18 '16
- Profit sharing system, Cleveland twist drill co. *Mach* 22:505 F '16
- Savings plan for New England power employees. *Elec W* 68:972 N 11 '16
- Shelby printing co.'s profit-sharing plan. *il Inland Ptr* 58:223-4 N '16
- Washington railway and electric company's employees receive bonus. *il Elec Ry J* 47:74 Ja 8 '16

Progress

- Have we advanced? *Sci Am* 114:192 F 19 '16

Prohibited books

- Oppression of printers and the liberty of printing. H; L: Bullen. *Inland Ptr* 58:86-8, 203-8 O-N '16

Prohibition

- Benefits of prohibition. G; N. Lantz. *Coal Age* 8:914 D 4 '15
- Prohibition in a boom gold camp at Oatman, Arizona. F. H. Probert. *Eng M* 50:945 Mr '16

Projectiles

- Aerial torpedoes. *il Sci Am S* 81:132-3 F 26 '16
- Dropping bombs from airships. C. S. Starworth. *Sci Am S* 81:251 Ap 15 '16
- Explanation of the double report of gunfire. L. F. J. Zerbe. *Sci Am* 113:557 D 25 '15
- Extreme ranges of modern guns. A. Hamilton. *il Sci Am* 114:378-9 Ap 8 '16
- Scientific bomb dropping; sighting devices for aircraft bombs. *il Sci Am S* 81:260 Ap 22 '16
- Throwing bombs from airships. A. Buttner. *il Sci Am S* 81:85 F 5 '16

See also Ballistics; Bullets; Grenades; Shells (projectiles); Shrapnel shells

Manufacture

- Machinery for the production of projectiles. *il diags Engineer* 119:572-6, 599-602, 634-6; 120:8, 116-17, 278, 338-9, 558-9; 121:42-3 Je 11-Jl 2, 30, S 17, O 8, D 10 '15, Ja 14 '16

See also Munitions of war; Shells; Shrapnel shells

Projectiles, Photography of. *See* Photography of projectiles**Projection of light.** *See* Light projection**Projection screens.** *See* Screens, Projection**Projectors.** *See* Light projection**Promotion.** *See* Employees**Proofreading**

- Inefficient proofreading. F. H. Teall. *Inland Ptr* 57:346-7 Je '16
- Proofreading as it is. F. H. Teall. *Inland Ptr* 56:639-40 F '16
- Proofroom. F. H. Teall. *See* monthly numbers of the *Inland printer*

- Varying styles and proofreading. F. H. Teall. *Inland Ptr* 55:468-70, 614-16, 756-9; 56:58-9, 202-3, 326-8, 472-4 Jl '15-Ja '16

See also Compound words

Propane

- Thermal decomposition of the propane-butane fraction from natural gas condensate. J. E. Zanetti. *diag J Ind & Eng Chem* 8:674-8 Ag '16

Propellers

- Calculations for ship's forms; experiments to determine dimensions of propellers for best efficiencies. D. W. Taylor. *Int Marine Eng* 21:71-5 F '16
- Criterion of propeller surface. P; Doig. *Int Marine Eng* 21:178-9 Ap '16
- Formula for dimensions of propeller. H. A. Everett. *Int Marine Eng* 21:36 Ja '16
- Geometry of wide-bladed screw propeller. N. A. Graveson. *diags Int Marine Eng* 21:242-4 My '16
- Mystery of the screw propeller. C. W. Dyson. *Engineer* 121:60 Ja 21 '16; Abstract. *Am Soc M E J* 38:95 Ja '16; Abstract. *Int Marine Eng* 21:217 Ap '16
- Power for driving propeller. H. A. Everett. *Int Marine Eng* 21:512 N '16
- Propeller design for turbine-driven ships. N. A. Graveson. *diags Int Marine Eng* 21:66-70 F '16
- Propeller immersion and efficiency. *Engineer* 122:101-2 Ag 4 '16; Same. *Sci Am S* 82:211 S 30 '16
- Propeller pitch. *Engineer* 121:275 Mr 31 '16
- Propeller results; abstracts of papers by J. D. Young and T. C. Tobin. *Engineer* 121:343-4 Ap 21 '16
- Screw propeller; discussion of slip, cavitation and other operating factors. A. Denny. *Sci Am S* 81:158-60 Mr 4 '16
- See also* Ship propulsion; Steamboats

Lubrication

- Cedervall patent protective and lubricating box for propeller shafts. *diag Int Marine Eng* 21:94 F '16

Propellers, Aerial

- Aerial propulsion of boats. *Sci Am S* 82:179 S 16 '16

Propellers, Aeroplane. *See* Aeroplane propellers**Property.** *See* Liens; Mechanics' liens; Valuation**Proportion**

- Sense of proportion; applying the principle of similarity to the designing of machinery. *Sci Am S* 82:227 O 7 '16

Proportional limit. *See* Elastic limit**Propylene**

- Critical constants of normal butane, isobutane and propylene and their vapor pressures at temperatures between 0°C. and 120°C. F. M. Seibert and G. A. Burrell. *diags Am Chem Soc J* 37:2683-91 D '15

Prospecting

- Cattlemen menace prospecting. J. A. McKenna. *Eng & Min J* 102:555 S 23 '16
- Churn-drill prospecting at Morenci, Ariz. W; R. Grunow. *il plan Eng & Min J* 101:969-74 Je 3 '16
- Experience of a prospector in Honduras. *Eng & Min J* 101:1118-19 Je 24 '16
- Prospecting on forest reserve. *Eng & Min J* 101:612 Ap 1 '16
- Tell-tale fossil; finger posts on the road to oil and mineral deposits. A. Salisbury. *il Sci Am* 115:348-9 O 14 '16

See also Assaying; Mines and mineral resources; Ore sampling

Prosperity week, Electrical. *See* Electrical prosperity week**Prosser, Washington****Water supply**

- Municipal irrigation system of Prosser, Washington. *il Munic Eng* 49:208-9 D '15

Protection of flowers. *See* Flowers, Protection of**Protective activities of organisms.** B; C. Gruenberg. *il Sci Am S* 80:404-6 D 25 '15

Proteins

- Chemical constitution of the proteins of wheat flour and its relation to baking strength. M. J. Blish. *J Ind & Eng Chem* 8:138-44 F '16
- Specificity of proteins and carbohydrates. E. T. Reichert. *Sci Am* 81:226-7 Ap 8 '16
- Studies on nitrated proteins; the hydrolysis of nitro-fibroin with hydrochloric acid. T. B. Johnson and A. J. Hill. *Am Chem Soc J* 38:1392-8 Jl '16

Proteolysis

- Examination of certain methods for the study of proteolytic action. H. C. Sherman and D. E. Neum. *Am Chem Soc J* 38:2199-216 O '16

Protractors

- Special device and procedure for cross-sectioning tunnels. T. H. Robertson. *diags Eng & Contr* 46:154-5 Ag 16 '16
- Watch face as protractor. G. H. Fellows. *il Eng & Min J* 101:395 F 26 '16
- See also* Bevel protractor

Prussian blue. *See* Cyanogen**Psychology**

- Psychology and light. H. Muensterberg. *Illum Eng Soc* 11:640-9 n 6 '16
- See also* Animal intelligence; Color sense; Dreams; Imagination

Psychology, Physiological

- Relation of muscular activity to the mental process. G. V. Dearborn. *Sci Am* 82:210-11 S 30 '16

Psychology of animals. *See* Animal intelligence**Psychrometers**

- Corns electro psychrometer. *il Textile World* 51:1639 Ap 1 '16

Psychrometry

- Humidity computing scale. A. W. Thompson. *il Textile World* 51:4541 O 21 '16
- Psychrometric chart. H. L. Parr. *Power* 43:434-6 Mr 28 '16
- Psychrometric tables and chart. *Heat & Ven* 13:17-21 Jl '16

Public accountants. *See* Accountants, Public**Public accountants, American association of.**
See American association of public accountants**Public buildings**

- Omnibus public building bill. *Am Inst Arch* J 4:320-2 Ag '16
- Open letter to the members of the 64th Congress of the United States. C. H. Whitaker. *Am Inst Arch J* 4:239-42 Je '16
- Our stupid and blundering national policy of providing public buildings. C. H. Whitaker. *il Am Inst Arch J* 4:44-58, 96-105 F-Mr '16
- Power plant for government buildings in Washington. *map Eng N* 75:426-8 Mr 2 '16
- Public-building bills introduced into the 64th Congress of the United States; statistics of appropriations, population of cities, etc. *Am Inst Arch J* 4:243-54 Je '16
- Report of committee of American institute of architects on government architecture. *Am Inst Arch J* 3:546-7 D '15

See also Baths, Public; Court houses; Fire houses; Library architecture; Market buildings; Municipal buildings; Police stations; Post office buildings; Prisons; Public comfort stations; Public works; School-houses; Social centers; United States—Capitol

Public comfort stations

- American plan for public comfort stations. J. J. Cosgrove. *Dom Eng* 76:231-2 Ag 12 '16
- Boston common convenience station. *il Munic J* 41:127 Ag 3 '16
- Chicago's need of public comfort stations. *Dom Eng* 77:147-S N 4 '16
- Common sense and comfort stations. W. Hutchinson. *Dom Eng* 75:306 Je 3 '16
- Field house and comfort station. *il plan Bldg* Age 38:25-30 S '16
- Low cost comfort stations in Indiana parks. *il plans Metal Work* 85:888-9 Je 30 '16
- Modern comfort station in Herrington's Island park, Geneva, Ill. *il diag Metal Work* 86:517-19 O 27 '16

More public comfort stations: an urgent necessity in many communities. B. O'Hara. *Dom Eng* 75:265 My 27 '16

Motor comfort stations on all highways. *Metal Work* 86:159-60 Ag 4 '16

Movement for more public comfort stations. *Dom Eng* 75:18-19 Ap 1 '16

Need of public comfort stations. D. A. Calhoun. *Metal Work* 86:211 Ag '18 '16

Need of public comfort stations. W. A. Evans. *Dom Eng* 73:296 D 4 '15

New comfort stations under Public library, Chicago. *il plans Metal Work* 85:119-22 Ja 21 '16

New work for practical comfort stations. *Metal Work* 85:394 Mr 17 '16

Plumbing work in Pittsburgh comfort station. *il plan Metal Work* 85:469-71 Ap 7 '16

Profit in the public comfort station bureau. J. J. Cosgrove. *Dom Eng* 76:34-5 Jl 1 '16

Public comfort station failures. J. J. Cosgrove. *Dom Eng* 76:226 Ag 12 '16

Standards for public comfort stations. J. J. Cosgrove. *Dom Eng* 77:11-12 O 7 '16

Urgent need of public comfort stations. J. J. Cosgrove. *Dom Eng* 75:368-9 Je 17 '16; Same. *Metal Work* 85:852-3 Je 23 '16

Public debts. *See* Debts, Public**Public health**

Dynamic aspect of public health development. *Metal Work* 86:644-5 N 24 '16

Forestry and the public health. H. R. Hopkins. *Am For* 22:417-18 Jl '16

How a miner can avoid some dangerous diseases. A. J. Lanza and J. H. White. *il U S Bur Mines Circ* 20:1-25 '16

Transmissibility of diseases, and the public health. A. C. Abbott. *J Fr Inst* 181:629-42 My '16

Work of the Dallas department of public health. *Eng N* 75:465 Mr 9 '16

See also Cleaning of cities; Diseases, Industrial; Disinfection and disinfectants; Dust removal; Factory sanitation; Housing problem; Malarial fever; Physical examinations; Public comfort stations; Refuse and refuse disposal; Safety devices and measures; Sanitary engineering; Sanitation; School hygiene; Sewage disposal; Smoke prevention; Street cleaning; Swimming pools; Ventilation; Water pollution; Water supply

Public health association, American. *See* American public health association**Public health boards.** *See* Health boards**Public health laws**

State control of Kansas water supplies. C. A. Haskins. *Munic J* 40:264-6 F 24 '16

See also Building laws; Heating—Laws; Plumbing laws and regulations; Sewerage—Laws; Ventilation—Laws

Public lands

See also Forest reserves; Mineral lands; National parks

Public service

Public service opportunity and preparedness. J. L. Jacobs. *W Soc E J* 21:495-520 Je '16; Excerpts. *Eng & Contr* 46:257-8 S 20 '16; Discussion. *W Soc E J* 21:521-6 Je '16

Public service commissions. *See* Public utilities commissions**Public service corporations.** *See* Public utilities**Public service electric company, New Jersey**

Experience and recent developments in central station protective features. N. L. Pollard and J. T. Lawson. *diags Am Inst E E Pro* 35:879-99 Je '16; Same cond. *Power* 44:220-2 Ag 8 '16; Abstract. *Elec W* 68:628 S 23 '16

Public speaking

How to become an effective public speaker. *Eng Rec* 73:331 Mr 4 '16

Public taste. Education of. J. B. Carter. *Am Inst Arch J* 4:7-10 Ja '16**Public utilities**

Analysis of Merrill report on water-power. *Elec W* 68:10-12, 69-70 Jl 1-8 '16

Concentration of control of public utilities; government report to Senate. *Elec W* 67:302-3, 362-4 F 5-12 '16

Public utilities—Continued

Cost of utility changes made to avoid interferences. H. H. Shearer. Eng N 75:541 Mr 23 '16; Same. Am Gas Light J 104:396 Je 19 '16

Duties and opportunities of public utilities. S. Insull. Am Gas Light J 105:172 S 11 '16

Evolution of public utilities. G. P. Roux. Eng M 51:386-93 Je '16

Evolution of public utilities. W. N. Polakov. Eng M 51:593-4 J1 '16

Utility cost forms small part of living expenses of average family. H. Almert. Am Gas Light J 105:59 J1 24 '16

See also Electric railroads; Electric service companies; Gas companies; Government ownership; Government regulation of industry; Public utilities commissions; Railroads; Street railroads; Telegraph; Telephone; Telephone companies; Valuation; Water companies; Waterworks

Accounting

Idea of capitalization as applied to public service corporations. J. Bauer. J Account 22: 1-9 J1 '16

See also Electric railroads—Accounting; Railroads—Accounting; Waterworks—Accounting

Employees

Efficient employees are an element in costs. S. J. Dill. Elec W 68:410-11 Ag 26 '16

Engineer's plan to prevent strikes on public utilities. Eng N 76:757-8 O 19 '16

Prevention of railroad strikes. H. R. Towne. Ry Age 61:545-6 S 29 '16; Same. Elec W 68: 653-4 S 30 '16; Same cond. Ry R 59:482-3 O 7 '16; Abstract. Eng Rec 74:473 O 14 '16

Finance

Attitude of Wisconsin commission on security issues. H. L. Geisse. Elec Ry J 47:602-3 Mr 25 '16

Consolidated stock not limited by fair value. Elec Ry J 48:965-7 N 4 '16

Earnings of Chicago utilities. S. Insull. Elec W 68:1038 N 25 '16

Financing public utilities under state control; and service rate and rate of return. C. P. Wilson. Am Gas Light J 104:309-10 My 15 '16

Financing utilities operating under state control. C. P. Wilson. Gas Age 38:70-1 J1 15 '16

Relieving the investor's uncertainty. J. Bauer. Elec Ry J 47:491-4 Mr 11 '16

Taxation and issuance of securities discussed by Wisconsin utility representatives. Elec W 67:695-6 Mr 25 '16

Utility bonds for savings banks; report of committee of investment bankers' association. Elec Ry J 48:926-9 O 28 '16; Excerpt. Elec W 68:787 O 14 '16

See also Electric railroads—Finance; Electric service companies—Finance; Railroads—Finance; Street railroads—Finance

Franchises

Franchises of public utilities as they were and as they are. H. C. Hodgkins. Am Water Works Assn J 2:739-58 D '15

Theory of public utility franchises. G. McLean. Am Gas Light J 104:404-5 Je 26 '16; Same cond. Elec Ry J 47:899-900 My 13 '16

Utility-franchise policy for a model city charter. Eng N 75:209 F 3 '16

See also Street lighting—Contracts; Street railroads—Franchises

Law

Interpretations of Indiana utility law. Elec W 67:586 Mr 11 '16

Utility legislation in Wisconsin. J. B. Sanborn. Elec Ry J 47:648-9 Ap 1 '16

See also Public utilities—Regulation; Public utilities commissions

Management

Management of a public utility in the average American city. A. Gschwindt. W Soc E J 21:415-17 My '16

Rewarding ably-managed public utilities. S. W. Fleming, jr. Elec W 68:902-3 N 4 '16

Waste in the management of public utility power plants. F. W. Collins. Eng M 49:888-93 S '15; Same. Am Gas Light J 104:108-9 F 14 '16

See also Public utilities—Employees

Public relations

Character in public utilities. N. T. Guernsey. Am Gas Light J 104:389-90 Je 19 '16

Co-operating with the consumer. W. J. Baldwin. Heat & Ven 13:18-23 Je '16

Customer ownership of utility securities. W. H. Hodge. Elec R & W Elec'n 69:586-9 S 30 '16

Public relations of public utility companies. J. I. Wakelee. Elec Ry J 48:1095-6 N 25 '16

See also Electric railroads—Public relations; Electric service companies—Public relations; Railroads—Public relations; Street railroads—Public relations

Rates

Giving local 100 per cent service. H. S. Cooper. Elec Ry J 48:1060-2 N 18 '16

See also Electric power—Rates; Gas rates; Water rates

Regulation

Control and regulation. T. N. Vail. Elec W 67:732-3 Mr 25 '16

Dangers of utility regulation. T. N. Vail. Elec Ry J 47:646 Ap 1 '16

Development of the true function of the commission. W. J. Hagenah. Elec W 67:16-17 Ja 1 '16

Evolution in public utilities. W. W. Freeman. Elec W 68:752-3 O 14 '16

Hong-Kong local section: chairman's address. W. L. Carter. Inst E E J 54:11-14 D 1 '15

Interstate utility capitalization. R. E. Heilman. Elec Ry J 47:1042 Je 3 '16

Is utility regulation on the right basis? J. D. Galloway. Eng Rec 74:561-3 N 4 '16

Method of determining a reasonable service rate for municipally-owned public utilities. J. B. Lippincott. Elec Ry J 48:1010-11 N 11 '16

Municipal co-operation in public utility management. P. J. Kealy. Am Inst E E Pro 34: 2263-74 O '15; Same cond. Elec Ry J 46:861-3 O 23 '15; Discussion. Am Inst E E Pro 35: 493-6 Ap '16

Public demands a square deal for the utility. Elec W 68:21-2 J1 1 '16

Public service and the consumer. H. A. Wagner. Elec W 68:7-9 J1 1 '16

Public service commission rulings on central station heating. Heat & Ven 13:45-6 N '16

Public-utility commissions should regulate, not operate, corporations. L. Metcalf. Eng Rec 74:588-91 N 11 '16

Railway commissioners meet in capital. Elec Ry J 48:1097-1101 N 25 '16; Same cond. (Federal versus state regulation of utilities). Elec W 68:1042-3 N 25 '16

Reform and regulation. A. C. Humphreys. Boston Soc E E J 3:271-97 Je '16; Discussion. 3:405-38 S '16

Regulation of public utilities. C. A. Prouty. Ry Age 60:70 Ja 14 '16

Regulation of public utilities. L. A. Busbey. W Soc E J 21:33-51 Ja '16; Same cond. Elec Ry J 46:1081-4 N 27 '15; Abstract. Elec R & W Elec'n 67:986 N 27 '15; Discussion. W Soc E J 21:51-4 Ja '16

Strong regulatory body only solution of public utility proposition. S. Insull. Am Gas Light J 105:190 S 18 '16

Talks in the industry: commission regulation and mutualization. F. Nicholas. Elec W 67: 530-1 Mr 1 '16

Utility service rules adopted in California. Eng N 75:105 Ja 20 '16

Wisconsin electrical association considers regulation, rates and street lighting at annual convention. Elec R & W Elec'n 68:534-5 Mr 25 '16

See also Electric service companies—Regulation; Gas companies—Regulation; Government regulation of industry; Municipal ownership; Public utilities commissions; Railroads and state

Public utilities—Regulation—Continued**Bibliography**

List of recent references on public service rates with special reference to regulation. H. H. B. Meyer. *Special Libraries* 7:21-8 F '16

Taxation

Occupation tax on gas companies held invalid. *Gas Age* 38:303 S 15 '16

Wisconsin electrical association summary of taxation discussion. *Elec Ry J* 47:599 Mr 25 '16

Valuation

Arbitration by engineers saves time and money in sewer-valuation case. F. Gannett. *Eng Rec* 74:107 J1 22 '16

Commission valuation for rate purposes. J. E. Benton. *Elec Ry J* 48:782-6 O 14 '16

Continuous inventories; their preparation and value. H. E. Carver. *Am Inst E E Pro* 35:1545-57 N '16; Same cond. *Elec Ry J* 48:1053-4 N 18 '16

Depreciation and value of public utilities. C. C. James. *J Account* 22:409-16 D '16

Effect of recent decisions on the work of inventory and appraisal. P. Betts. *Am Inst E E Pro* 35:1539-44 N '16; Excerpts. *Elec Ry J* 48:1052-3 N 18 '16

Growth and depreciation. J. Loebenstein. *Am Inst E E Pro* 35:1559-77 N '16; Excerpts. *Elec Ry J* 48:1057-9 N 18 '16

How to appraise public utility property. G. W. Kuhn. *diag Elec Ry J* 48:97-100, 315-19 J1 15, Ag 19 '16

How to reduce the high cost of valuation. M. R. Maltbie. *Elec W* 68:13-14 J1 1 '16

Illinois decision on valuation. *Elec Ry J* 47:1002-5 My 27 '16

Improvements in public utility control and valuation. L. Metcalf. *Eng Rec* 73:117-18 Ja 22 '16; Excerpts. *Eng N* 75:215 F 3 '16

Inventories and appraisals; abstracts of papers at A. I. E. E. *Elec W* 68:991 N 18 '16

Lessening cost of valuation of public utilities. *Am Gas Light J* 104:183 Mr 20 '16

Obsolescence in appraisals for rate making. C. C. Harshman. *Eng N* 76:842-3 N 2 '16

Overhead charges in valuation work. P. J. Kealy. *Elec Ry J* 48:762-7 O 14 '16; Excerpt. *Eng & Contr* 46:432 N 15 '16

Points decided in Colorado Springs rate case. *Am Gas Light J* 104:207 Mr 27 '16

Portland railway and light valuation. *Elec W* 67:1455-6 Je 24 '16

Report of committee on American electric railway association on valuation. *Elec Ry J* 48:806-7 O 14 '16

Uncertainty of utility valuation. T. S. Williams. *Elec Ry J* 47:254-6 F 5 '16

Valuation of Cincinnati Union gas & electric co. fixed. *Elec W* 68:590 S 16 '16

Valuation of water rights for power companies. J. P. Newell. *Eng N* 75:651-2 Ap 6 '16

See also Depreciation; Electric railroads—Valuation; Electric service companies—Valuation of property; Gas companies—Valuation of property; Public utilities—Rates; Railroads—Valuation; Street railroads—Valuation; Waterworks—Valuation

Public utilities commissions

Comments on public utility commissions. S. Insull. *Elec Ry J* 47:950-1 My 20 '16

Commission procedure in rate cases. *Elec W* 67:1290 Je 3 '16

Commission regulation commended. S. Insull. *Elec W* 67:1192-3 My 20 '16

Dangers of public-utility commission control. L. Metcalf. *Eng N* 75:169 Ja 27 '16

Development of the true function of the commission. W. J. Hagenah. *Elec W* 67:16-17 Ja 1 '16

Difficulties of commission work. F. J. McLeod. *Elec W* 67:472-3 F 26 '16

Diverted efforts of commissions. W. McClellan. *Am Gas Light J* 104:118-19 F 21 '16

Important cases pending before commissions. *Elec W* 67:535-6 Mr 4 '16

Improvements in public utility control and valuation. L. Metcalf. *Eng Rec* 73:117-18 Ja 22 '16

Massachusetts regulation; scope and difficulties of work. F. J. McLeod. *Elec Ry J* 47:651 Ap 1 '16

Public-utility commissions should regulate, not operate, corporations. L. Metcalf. *Eng Rec* 74:588-91 N 11 '16

Reforms in practice of commission regulation; abstracts. A. C. Humphreys. *Elec W* 67:1044-5 My 6 '16; *Elec Ry J* 47:858 My 6 '16

See also Public utilities; Railroad commissions

Engineering departments

Development and importance of an adequate engineering department for a public service commission. W. A. Shaw. *W Soc E J* 20:685-93 N '15; Same cond. *Am Gas Light J* 104:147-8 Mr 6 '16; Discussion. *W Soc E J* 20:693-9 N '15

Public utility subways. *See* Subways (conduits)

Public works

Administration of European cities. J. Pitzman. *map Assn Eng Soc J* 55:231-50 D '15

Advancement of the profession of the civil engineer; abstracts. C. Herschel. *Eng N* 75:1250-1 Je 29 '16; *Eng Rec* 74:9-10 J1 1 '16

Alternate specifications for public work. C. D. Hill. *Eng N* 74:1188-9 D 16 '15

Favors federal department of public works. C. E. Grunsky. *Eng Rec* 73:475 Ap 8 '16

Federal department of public works urged. T. M. Ripley. *Eng N* 76:84 J1 13 '16

Importance of cost data on day labor work. A. E. Foreman. *Munic J* 41:183-8 Ag 17 '16

Millions for paving controlled by handful of pins. *il map Eng Rec* 72:714-17 D 11 '15

Necessity for a national department of public works. I. Randolph. *Eng Soc W Pa* 32:202-14; Discussion. 215-25 Ap '16

What constitute municipal public works. J. Simpson. *Munic J* 41:99-100 J1 27 '16

See also Irrigation; Public buildings; Reclamation service (United States); Rivers—Regulation; Roads

Bibliography

List of references on federal, state and municipal public works departments in the United States and foreign countries. Library of congress 15p (Typew)

Publicity

Friendly power of the public press. E. E. Whitehorse. *il Elec W* 67:479-80 F 26 '16

Newspaper publicity commended. L. Carraway. *Elec Ry J* 48:936-7 O 28 '16

Publicity for business. *Am Ind* 16:11-13 My '16

Separate organization of engineers for publicity work inadvisable. E. T. Thurston. *Eng & Contr* 45:108-9 F 2 '16

See also Advertising; Electric railroads—Public relations; House organs; Railroads—Public relations; Street railroads—Public relations

Publishing. *See* House organs; Printing

Pulleys

Belt-and-bucket elevators. A. O. Gates. *diags Eng & Min J* 102:40-5 J1 1 '16

Pulley computation chart. W. F. Schaphorst. *Eng & Min J* 102:996 N 18 '16; Same. *Coal Age* 10:871 N 25 '16

Transmitting power by leather belting. R. T. Kent. *Iron Age* 97:527-33 Mr 2 '16

Voltage variations that were traced to loose pulley on generator. E. C. Parham. *Elec W* 67:772 Ap 1 '16

Wrought steel pulley for heavy service. *il Iron Age* 97:196 Ja 20 '16

See also Belting

Pulmotor

New type of pulmotor for saving lives by stimulating natural breathing. *il diag Elec R & W Elec'n* 69:172-3 J1 22 '16

Pulp wood. *See* Wood pulp

Pulverized coal. *See* Coal, Pulverized

Pump lining

Renewing wornout pump linings. *Int Marine Eng* 21:424-5 S '16

Pumping

Coal consumption required for certain pump duty; chart. *Elec W* 68:1105 D 2 '16

Pumping—Continued

Handy chart for figuring power capacity and efficiency of pumps. W. F. Schaphorst. Eng & Contr 46:136 Ag 9 '16
 Hydraulic system in modern shell plant. F. L. Prentiss. il plan Iron Age 98:232-3 Ag 3 '16
 Unique equipment for the unwatering of New York city's great aqueduct. R. G. Skerrett. il Sci Am 114:443 Ap 29 '16
See also Mine pumping; Pumping stations; Pumps; Sewage pumping

Cost

Comparative cost of distillate. Eng & Min J 101:1115 Je 24 '16
 Cost of operating a Kansas pumping plant. O. H. Horner. il Elec W 68:25 Jl 1 '16
 Dewatering Cobalt lake. Eng & Min J 102:560 S 23 '16
 How much will we save? C. W. Hubbard. diag Power 43:290-1 F 29 '16
 Land drainage by means of pumps. S. M. Woodward. U S Agric Bul 304:49-59 '15; Excerpt (Volume pumped and cost of pumping). Eng & Contr 45:94-6 Ja 26 '16
 Pointers for comparing types of pumping units. G. M. Peek. Eng N 74:1253-4 D 30 '15
 Pumping costs with Diesel engines given in detail. H. W. Gochbauer. il Eng Rec 73:732-3 Je 3 '16
 Selection, installation and test of a 1,000,000 gallon motor driven centrifugal pump. S. R. Blakeman. il diags Am Water Works Assn J 3:557-80 Je '16
 Unwatering of the down town mining district of Leadville. W. H. Horton, jr. il diags Gen Elec R 19:96-106 F '16
 Use of oil engines for pumping. C. R. Knowles. Am Water Works Assn J 3:356-63 Je '16; Same. Eng & Contr 45:217-18 Mr 1 '16

Pumping engines

Calculating pumping duty. E. C. Doland. Power 43:654 My 9 '16
 Engineering water supply by gas engine driven pump. il Eng & Contr 46:33-4 Jl 12 '16
 Erasmus Darwin Leavitt, 1836-1916. Am Soc M E J 38:327-9 Ap '16
 Gasoline pumping outfit. F. C. Perkins. il Power 44:165 Ag 1 '16
 Montreal centrifugal pump. R. A. Burford, jr. Eng N 76:133-4 Jl 20 '16
 Passing of an old Corliss pumping engine. W. O. Rogers. il diag Power 44:456-7 S 26 '16
 Proper methods of testing waterworks pumps. L. A. Day. Eng N 75:1213-15 Je 29 '16
 Pumping machinery; test duty vs. operating results. J. N. Chester. Am Water Works Assn J 3:493-503 Je '16; Same abr. Power 44:72-3 Jl 11 '16; Excerpts (Various factors influence pumping plant efficiency). Eng Rec 73:804 Je 17 '16; Discussion. Am Water Works Assn J 3:740-7 S '16
 Pumping units of various types for small water supply systems. Munic J 40:879-80 Je 22 '16
 Use of oil engines for pumping. C. R. Knowles. Am Water Works Assn J 3:356-63 Je '16; Same. Eng & Contr 45:217-18 Mr 1 '16
 Useful diagrams for computing sizes of cross-compound pumping engines. Elec W 68:768 O 11 '16

Testing

Test of seven million gallon pumping engine. Power 43:393-4 Mr 21 '16

Pumping machinery

See also Air lifts; Pumping engines; Pumping stations; Pumps; Waterworks

Pumping machinery, Electric

Automatic house pumps. il Elec W 67:786 Ap 1 '16
 Automatic water-works for Milltown. N. J. C. Potts. il diags plans Eng N 75:1117-19 Je 15 '16; Same cond. Power 44:193-4 Ag 8 '16
 Large pumping installation for gravel plant operated by motor. il Elec R & W Elec'n 69:768 O 28 '16
 Boiler pump motor control. C. V. Hull. plan Power 44:69 Jl 11 '16
 Booster pumping station for water-supply to a suburb. Eng N 76:1017 N 30 '16

Brooklyn adds an automatic sewage-pumping station. L. J. Gersoni. il plan Eng N 76:810-12 O 26 '16
 Cost of operating a Kansas pumping plant. O. H. Horner. il Elec W 68:25 Jl 1 '16
 Deep well pump and water supply. il Elec W 68:1114-15 D 2 '16
 Duro electric soft water pump. il Dom Eng 74:340 Mr 11 '16
 Electric dredge used on river improvement in Washington. J. H. Walter. il Eng N 75:441-3 Mr 9 '16
 Electric drive replaces steam for drainage pumps. E. J. Hegerty. il Eng Rec 73:635-6 My 13 '16
 Electric high-speed pumps. il Elec W 68:145 Jl 15 '16
 Electric operation of oil properties. L. R. W. Allison. il Elec W 67:261 Ja 29 '16
 Electric pump outfit for domestic service. il Elec W 67:341 Ap 8 '16
 Electric pumping of deep wells at Memphis, Tenn. Eng & Contr 45:349-50 Ap 12 '16
 Electric pumping plant for land drainage. Eng N 76:419 Ag 31 '16
 Electrically operated pump. il Elec W 67:168 Ja 15 '16
 Electricity in municipal pumping plants. il Elec R & W Elec'n 69:920-4 N 25 '16
 Electricity supplants mesquite-fired boiler as power source for pumps. il diag map Eng Rec 73:570-1 Ap 29 '16
 Federal power development at Williston. A. P. Connor. il diags plan Power 43:240-4 F 22 '16
 Grit chamber and pump station, Albany sewage-works. J. H. Gregory. diag plans Eng N 75:1225-7 Je 29 '16
 Hazel automatic electric water system for pressure-tank use. il Elec W 67:506 F 26 '16
 How a pump motor at a mine is controlled from two points. F. M. Gillespie. diag Elec W 67:546-7 Mr 4 '16
 Industrial control; accelerating characteristics of centrifugal pumps and fans. B. W. Jones. diag Gen Elec R 19:703-5 Ag '16
 Irrigation increases land value from \$20 to \$400 per acre. il Elec R & W Elec'n 68:103-9 Ja 15 '16
 Kinks and operating costs at small pumping plant. il Eng Rec 74:201 Ag 12 '16
 Motor-driven manhole pump. il diag Eng & Contr 46:233-4 S 13 '16
 Motor-driven pot valve triplex pump. il Iron Age 97:1004 Ap 27 '16; Mach 22:815-16 My '16; Iron Tr R 58:989-90 My 4 '16
 Motor-driven pump saves city \$2,000 in cleaning reservoir. Elec R & W Elec'n 68:1119 Je 17 '16
 Motor-driven pumping installation at Leonard mine, Butte, Mont. R. H. Richards. il plan Elec W 67:321-2 F 5 '16
 Motor-driven turbine pumps. A. E. Walden. charts Power 43:596 Ap 25 '16
 Motor pumps of Rock Hill, S. C. il Munic J 41:516 O 26 '16
 Motor worm-driven pumps. il Power 43:111-12 Ja 4 '16
 North Memphis pumping station. T. M. Heermans. il plan Power 44:440-2 S 26 '16
 Paul electric water-supply systems for residences and institutions. il Elec R & W Elec'n 68:389-90 F 26 '16; Elec W 67:615 Mr 11 '16
 Peters electric pumping equipments. il Elec R & W Elec'n 69:942-3 N 25 '16
 Power from a pumping plant. H. A. Megraw. il Power 43:295-6 F 29 '16
 Pumping from deep wells into water mains at Memphis. diags Eng N 75:1038-40 Je 1 '16
 Pumping station profits by substitution of electric power for steam. J. A. Randolph. il Munic Eng 50:110 Mr '16
 Pumping station used for both drainage and irrigation. il diags Eng N 76:556 S 21 '16
 Pyramid motor-driven double-acting piston pump. il Elec R & W Elec'n 69:608 S 30 '16
 Selection, installation and test of a 1,000,000 gallon motor driven centrifugal pump. S. R. Blakeman. il diags Am Water Works Assn J 3:557-80 Je '16
 South End sewer system of Boston. E. S. Dorr. il diag Boston Soc C E J 2:368-70 D '15; Excerpts. Eng & Contr 45:18-19 Ja 5 '16
 Spring lake drainage and levee district. Tazewell co., Ill. il Elec R & W Elec'n 69:759-60 O 28 '16

Pumping machinery, Electric—Continued

Under water 36 hours, electric motors run without drying. *il Elec R & W Elec'n* 69:893 N 18 '16

Unwatering of the down town mining district of Leadville. W. H. Horton, jr. *il diags Gen Elec R* 19:96-106 F '16

Water supply for the town of Canton, Mass. *il Elec R & W Elec'n* 68:72 Ja 8 '16

Pumping stations

Automatic water-works for Milltown, N. J. C. Potts. *il diags plans Eng N* 75:1117-19 Je 15 '16; Same cond. *Power* 44:193-4 Ag 8 '16

Booster pumping station for water-supply to a suburb. *Eng N* 76:1017 N 30 '16

Buffalo completes huge new pumping station. *il plans Eng N* 75:207-9 F 3 '16

Colliery pumping plant in North Staffordshire. *il diags Engineer* 121:354-5 Ap 28 '16

Combine waterworks intake and pumping station for Standard oil refinery. *diag Eng Rec* 74:230-2 Ag 19 '16

Costs on excavation and concrete for Mayfair pumping station, Chicago, Ill. *Eng & Contr* 46:364 O 25 '16

Deep-well pumping plant at the Leather-sellers' hall. *il diags plan Engineer* 122:148-9 Ag 18 '16

Design and test of a large reclamation pumping plant. G. C. Noble. *il diags map Am Soc M E J* 38:371-5, 723-4 My, S '16; Discussion. 38:561-2 JI '16

Dewatering Cobalt lake. *Eng & Min J* 102:560 S 23 '16

Drainage-pump foundation design is dam problem. H. L. Hutson. *diags plan Eng N* 76:838-9 N 2 '16

Electricity in municipal pumping plants. *il Elec R & W Elec'n* 69:920-4 N 25 '16

Emergency pumping with 412-ft. single-stage centrifugals. *il Eng N* 75:1161-2 Je 22 '16

Evolution of low-lift pumping plants in the Gulf coast country. W. B. Gregory. *il dia: map Am Soc M E J* 38:359-70 My '16; Discussion. 38:553-8 JI '16

Federal power development at Williston. A. P. Connor. *il diags plan Power* 43:240-4 F 22 '16

Flexible floating pumping plant on Calumet-Sag channel. *il Eng & Contr* 46:414 N 8 '16

Improving Schenectady's water works. *Munic J* 40:612 My 4 '16

Kingfisher, Okla., filter gallery and pump house. *il diag Eng N* 75:744-5 Ap 20 '16

Lake View pumping station, Chicago, T. Wilson. *il diag Power* 44:508-13 O 10 '16

Land drainage by means of pumps. S. M. Woodward. *il diags U S Agric Bul* 304:20-48 '15

Largest bridge caissons rivaled by timber crib sunk in free air in 34 days. *il diags plan Eng Rec* 74:98-100 JI 22 '16

Low-lift pumping plant uses distillate fuel. B. S. Nelson. *il diag plan Eng Rec* 74:437-8 O 7 '16

Memphis flood protection. *diags plan map Eng N* 75:890-4 My 11 '16

North Memphis pumping station. T. M. Heermans. *il plan Power* 44:440-2 S 26 '16

Pumping plant for small irrigation projects near Tucson, Ariz. *il Eng N* 75:1187-8 Je 22 '16; Same. *Power* 44:132 JI 25 '16

Pumping six million gallons daily by water power at Lewiston, Maine. *il Eng N* 76:441-2 S 7 '16

Pumping station used for both drainage and irrigation. *il diags Eng N* 76:556 S 21 '16

Pumping station will make deep Idaho lake available as equalizer for Bear river. *il diags map Eng Rec* 74:68-70 JI 15 '16

Remodeling a pumping station. S. A. Hadley. *Power* 43:358-9 Mr 14 '16

Reservoir and pumphouse. G. F. Alderson. *plan Eng & Min J* 102:547-8 S 23 '16

Restoring flood-wrecked well and pumping system. A. C. Francis. *il Eng N* 76:980-1 N 23 '16

Salt-water pumping plant. *il diag Power* 43:730-1 My 23 '16

Salvaging a flooded pumping plant in California. R. A. Silent. *il Eng N* 76:125-7 JI 20 '16

Service-wire entrances to western irrigation pump houses. *diags Elec W* 66:1373 D 18 '15

Turbine pumping station below ground in San Antonio. *il diags plan Eng N* 75:1125-8 Je 15 '16; Excerpts. *Power* 44:84-5 JI 18 '16

Under water 36 hours, electric motors run without drying. *il Elec R & W Elec'n* 69:893 N 18 '16

Water for Prickly Pear irrigation project raised 160 feet with financial success. *diags plan map Eng Rec* 72:691-3 D 4 '15

Water-power storage reservoir with pumping station, Bear lake, *il diags plans map Eng N* 76:67-9, 98-100 JI 13-20 '16

See also Mine pumping; Pumping—Cost; Pumping machinery; Sewage pumping; Water supply engineering; Waterworks

Pumpkins

Feeding a pumpkin with a sugar solution. S. L. Bastin. *il Sci Am* 114:527 My 20 '16

Pumps

Air in pump pipe makes trouble. *Metal Work* 85:385 Mr 17 '16

American-Marsh steam pump. *diags Dom Eng* 73:374-5 D 18 '15; Heat & Ven 13:54-5 Ja '16

Defender gas suction pump. *il Power* 43:296 F 29 '16

Deming pumps. *il Munic J* 41:438-9 O 5 '16

Diaphragm pumps now rank with other pumps in efficiency. *diag Munic Eng* 50:119-20 Mr '16

D'Olier-De Huff reinforced concrete case pump. *diags Munic J* 41:335-6 S 14 '16

Electricity in pump manufacture. *il Elec R & W Elec'n* 67:1057-60 D 11 '15

Garage business; storage and handling of gasoline and oil. F. M. Heldt. *il diag Horseless Age* 37:348-9+ My 1 '16

Glendora artesian-well pump. *il Power* 43:148-9 F 1 '16

Goulds oil-pumping units. *il Power* 43:391 Mr 21 '16

Groaning in steam pump. *Power* 43:301 F 29 '16

Improvement in contractors' pumps. *diags Eng N* 74:1248 D 23 '15

Improved sinking pump for inclined shafts. F. W. Foote. *il Eng & Min J* 102:345 Ag 19 '16; Same. *Coal Age* 10:381 S 2 '16

Intricate pump casting. *il Foundry* 44:34 Ja '16

Kinney rotating plunger pump for handling tars, asphalts and oils. *il Munic J* 39:962 D 23 '15

Land drainage by means of pumps. S. M. Woodward. *il diags plan U S Agric Bul* 304:1-59 '15; Excerpt. *Metal Work* 85:89 Ja 14 '16

Liquid-measuring pumps. F. J. Schlink. *il diags U S Bur Stand Tech Pa* 81:20-4 '16; Abstract. *J Fr Inst* 182:689-92 N '16

Locating three pumps in a given space. W. H. Wakeman. *diags Dom Eng* 77:219-20 N 18 '16

Piston-valve steam pump. *diag Power* 44:407-8 S 19 '16

Pitcher spout pumps should have separate suction pipes. *diags Dom Eng* 77:259-60 N 25 '16

Pump for testing boilers. *il Ry Mech Eng* 90:147 Mr '16

Rotary machine-tool lubricating pump. *il Iron Age* 98:1109 N 16 '16

Rotary pumps for by-product plants. *il Iron Tr R* 59:1006-7 N 16 '16; *Am Gas Light J* 105:351-2 N 20 '16; *Met & Chem Eng* 15:658-9 D 1 '16

Sandwich portable pumping outfit. *il Munic J* 40:563 Ap 20 '16

Turbine oil pump fails. R. E. Clinbeck. *il Power* 43:631 My 2 '16

Viking pump especially adapted to pump road oils. *il Eng & Contr* 45:576 Je 28 '16

Water discharge of power pumps. D. Fliegelman. *Power* 43:318-19 Mr 7 '16

Wonder improved trench pump. *il Munic J* 41:464 O 12 '16

See also Air lifts; Air pumps; Gasoline pumps; Pump lining; Pumping stations; Tire pumps; Vacuum pumps

Testing

Liquid-measuring pumps. F. J. Schlink. *il diags U S Bur Stand Tech Pa* 81:20-4 '16; Abstract. *J Fr Inst* 182:689-92 N '16

Pumps—Testing—Continued

- Mammoth screw pumps of new design develop high efficiencies for low lifts. *il* *diag* Eng Rec 73:54-6 Ja 8 '16
- Proper methods of testing waterworks pumps. L. A. Day. Eng N 75:1213-15 Je 29 '16
- Saline method of water flow measurement as used in the acceptance test of a pumping plant. W. D. Peaslee. *diags* Gen Elec R 19:132-8 F '16
- Sewage pumps in New Orleans. *il* *Munic* J 40:13-15 Ja 6 '16
- Shop pump testing plant; Lea-Courtenay co., Newark, N. J. *il* *Iron* Age 98:1055 N 9 '16
- Testing the 12-ft. Wood-Nordberg pump. W. H. P. Creighton. *il* *plan* Eng N 75:70-4, 716 Ja 13, Ap 13 '16
- What the Wood-pump test means to New Orleans. G. G. Earl. Eng N 75:74-5 Ja 13 '16
- See also* Pumps, Centrifugal—Testing

Pumps, Air lift. See Air lifts**Pumps, Centrifugal**

- Cameron improved centrifugal pump. *il* Eng & Contr 46:235 S 13 '16; Eng & Min J 102:593-4 S 30 '16; Met & Chem Eng 15:362-3 S 15 '16; *Munic* Eng 51:158-9 O '16; Coal Age 10:807-8 N 11 '16; *Iron* Age 98:395 Ag 24 '16; Power 44:351-2 S 5 '16
- Centrifugal-pump casings. Am Soc M E J 38:839 O '16
- Centrifugal pump for variable delivery. A. N. Cole. Coal Age 9:876 My 20 '16; Same. Eng & Min J 101:983 Je 3 '16
- Centrifugal versus reciprocating boiler feed pumps. M. W. Ehrlich. *il* Elec W 68:955-7 N 11 '16
- Condensation outfit for low-pressure systems. *il* Dom Eng 74:275 F 26 '16
- Data on operations of a motor-driven sand pump. S. C. Irby. Elec W 67:88 Ja 8 '16
- Devices for keeping centrifugal pumps running steadily. R. E. Post. Eng Rec 73:334 Mr 4 '16
- Difficulty with suction line. A. Arnois. *plan* Power 42:867 D 21 '15
- Difficulty with suction line. J. C. Hawkins. Power 43:593-4 Ap 25 '16
- Draining north Holland after January's great flood. J. Spaander. *il* *diags* Eng N 76:776-7 O 26 '16
- Evolution of low-lift pumping plants in the Gulf coast country. W. B. Gregory. *il* *diags* Am Soc M E J 38:362-6 My '16
- Hayton centrifugal pumps. *il* *Munic* J 39:994 D 30 '15
- How two pumps effected cost and efficiency. J. J. O'Connell. *il* Coal Age 9:567-8 Ap 1 '16
- Hydraulic stripping on the Cuyuna. E. P. McCarty. *il* *diags* Iron Tr R 58:135-9 Ja 13 '16
- Industrial control; accelerating characteristics of centrifugal pumps and fans. B. W. Jones. *diag* Gen Elec R 19:703-5 Ag '16
- Montreal centrifugal pump. G. H. Gibson. Eng N 75:1006 My 25 '16
- New centrifugal pump duty record. *Iron* Age 97:940 Ap 20 '16
- North Memphis pumping station. T. M. Heermans. *il* *plan* Power 44:440-2 S 26 '16
- Plant improvements of Ashland, Ky., steel works. *il* *Iron* Age 98:452-3 Ag 31 '16
- Pumping system for deep wells. *diag* Eng & Contr 45:578 Je 28 '16
- Pumps and automatic control. P. M. Heldt. *diags* Horseless Age 37:350-1, 398-9 My 1-15 '16
- Selection, installation and test of a 1,000,000 gallon motor driven centrifugal pump. S. R. Blakeman. *il* *diags* Am Water Works Assn J 3:557-80 Je '16; Abstract. Eng Rec 73:806 Je 17 '16; Discussion. Am Water Works Assn J 3:871-3 S '16
- Selection of centrifugal pumps. D. McEocoid. Engineer 122:318-19 O 13 '16
- Stripping the Hillcrest iron mine with a sand pump. *il* *map* Eng & Min J 101:211-15 Ja 29 '16
- Way to keep centrifugal pump from losing prime. Eng Rec 73:123 Ja 22 '16
- Wheeler centrifugal pumps. *il* Coal Age 9:500-1 Mr 18 '16; Eng N 75:344 F 17 '16

Zin-Ho centrifugal pump. *il* *Munic* J 41:555 N 2 '16

See also Impellers; Pumps, Feed water

Manufacture

How to mold large centrifugal pump casings. *il* Foundry 43:477-8 D '15

Testing

- Difficult pump test made with Pitot tube. C. E. Grunsky. *il* *diags* Eng N 76:8-11 J1 6 '16
- Montreal centrifugal pump. R. A. Burford, jr. Eng N 76:133-4 J1 20 '16
- More data on test of Montreal centrifugal pump. A. Peterson. Eng N 76:835-7 N 2 '16
- New duty record for steam-turbine-driven centrifugal pumps established at Montreal. *il* Eng & Contr 45:376-7 Ap 19 '16; Eng N 75:801 Ap 27 '16
- Pump tests with Pitot tube. W. B. Gregory. Eng N 76:180 J1 27 '16
- Shop and acceptance tests of 30,000,000-gal. pump. *il* *diag* Power 42:818-20 D 14 '15

Pumps, Feed water

- Cameron improved centrifugal pump. *il* Eng & Contr 46:235 S 13 '16; Eng & Min J 102:593-4 S 30 '16; Met & Chem Eng 15:362-3 S 15 '16; *Iron* Age 98:395 Ag 24 '16; Power 44:351-2 S 5 '16; *Munic* Eng 51:158-9 O '16; Coal Age 10:807-8 N 11 '16
- Centrifugal boiler-feed pump. J. D. Morgan. Power 44:285-6 Ag 22 '16
- Centrifugal boiler-feed pumps. J. Breslav. Power 43:334 Mr 7 '16
- Centrifugal boiler-feed pumps. O. Haentjens and E. F. Barrett. *diags* Power 44:609-12 O 31 '16
- Centrifugal versus reciprocating boiler feed pumps. M. W. Ehrlich. *il* Elec W 68:955-7 N 11 '16
- Coal cost for operating feed pump. Power 42:801 D 7 '15
- Feed pump valves. A. L. Haas. *Int Marine* Eng 21:509-10 N '16
- Feed pumps and methods used to overhaul them. F. C. Wolf. *diags* *Int Marine* Eng 21:255-6 My '16
- Fitting the turbine to the job. W. J. A. London. Power 43:200-1 F 8 '16
- Jumping of feed pumps. R. E. Newcomb. Power 43:524 Ap 11 '16
- Nash hydro-turbine air pump. *diags* Power 43:76-7 Ja 18 '16
- Stroke counter on feed pump. C. P. Larson. Power 43:195-6 F 8 '16
- Triplex boiler-feed pumps. J. C. Hawkins. Power 42:800 D 7 '15
- Turbine vacuum and low pressure boiler feed pump. *diags* Met & Chem Eng 13:978 D 15 '15

Pumps, Gas

- Humphrey pump; recent developments. C. C. Trump. *il* *diags* Sibley J 30:55-9 N '15; Abstract. Eng M 50:618 Ja '16
- Solid piston Humphrey pump. *il* *diags* Engineer 121:362-3 Ap 28 '16

Pumps, Tire. See Tire pumps**Punching machinery**

- Bench punching and riveting machine. *il* *Iron* Age 97:899 Ap 13 '16
- Detachable spring stripper. C. M. Weber. *diags* Mach 22:512-13 F '16
- Hand-operated punching and shearing machines. *il* *diags* Engineer 121:202-3 Mr 3 '16
- Heavy punching and shearing machine. *il* *Iron* Age 97:775 Mr 30 '16
- Pinch press tool. *il* *diags* Mach 22:511-12 F '16
- Punch and die troubles. J. M. Stabel. *diags* Mach 22:484-6 F '16
- Punching machine for ends of rails. *il* *Iron* Age 98:443 Ag 31 '16
- Rapid production punch press by Malm machine co. *diags* *Iron* Age 97:1435 Je 15 '16
- Recent multiple punching machine. *il* *Iron* Age 97:951 Ap 20 '16
- See also* Dies

Punctuation

- Opinion on punctuation. F. H. Teall. *Inland* Ptr 57:777 S '16
- Sadly neglected comma. F. H. Teall. *Inland* Ptr 57:777-8 S '16

Purchasing

- Anticipating buying emergencies. H. A. Russell. Iron Age 96:1300-2 D 2 '15
- Buying and selling control business success. B. F. Henry. Metal Work 86:79-80 J1 21 '16
- Buying material on a scientific basis. H. B. Twyford. Iron Age 98:16-19 J1 6 '16
- Buying methods. Factory 16:192+, 370+, 620+; 17:276+, 440+, 596+, 688+ F, Ap, Je, S-D '16
- Columbus purchasing agents' association. Elec Ry J 47:594 Mr 25 '16
- Influence of right buying on business. H. B. Twyford. Mach 22:1037 Ag '16
- Making sure that you get what you buy. W. T. Tewksbury. Factory 17:662-5 D '16
- Municipal supply department. H. M. Foster. Munic Eng 50:51-3; 51:9-10 F, J1 '16
- Practical pointers on buying for a city. F. S. Smith. Eng & Contr 45:117-20 F 2 '16; Excerpts. Eng Rec 72:700-1 D 4 '15
- Purchasing agent's place. F. W. Rowe. Iron Age 98:454 Ag 31 '16
- Purchasing large machinery. G. A. Orrok. Iron Age 97:950 Ap 20 '16
- Purchasing suggestion; how to buy sheetmill products. Iron Age 98:892-3 O 19 '16; Same. Metal Work 86:532-3 O 27 '16
- Requisitions, as the purchasing agent sees them. C. H. Still. Elec W 68:1011 N 18 '16
- Specifications and standard definitions. H. B. Twyford. Elec Ry J 48:973-4 N 4 '16
- Transmission losses in the purchasing department. H. B. Twyford. Elec Ry J 47:1091-2 Je 10 '16
- Two fundamentals in purchasing. H. B. Twyford. Iron Age 98:629-31 S 21 '16
- What you ought to expect of purchase specifications. L. C. Wilson. Factory 17:249-51 S '16
- Yearly records of quantities purchased. H. A. Russell. Iron Age 97:539-41 Mr 2 '16

See also Railroads—Purchasing

Pure textiles. See Textile industry and fabrics—Law**Purification of water.** See Water purification**Purkinje phenomenon**

- Absence of the Purkinje phenomenon in the fovea. L. T. Troland. J Fr Inst 182:111-12 J1 '16

Puttees

- Knitted puttees for military use. diags Textile World 51:2493 My 20 '16

Pycnometer

- Density of lead from radioactive minerals. T. W. Richards and C. Wadsworth. diag Am Chem Soc J 38:222-3 F '16
- Rapid pycnometric method for gravity solids in cane-sugar factories. H. S. Walker. J Ind & Eng Chem 8:262-4 Mr '16

Pyramidone

- Researches on organic periodides; periodides of antipyrine, iodoantipyrine and pyramidone. W. O. Emery and S. Palkin. Am Chem Soc J 38:2166-81 O '16

Pyranometer

- Pyranometer; an instrument for measuring sky radiation. C. G. Abbot and L. B. Aldrich. Sci Am S 82:176 S 9 '16

Pyrazolones

- Reactions of the formamidines; some pyrazolone derivatives. F. B. Dains, H. R. O'Brien and C. L. Johnson. Am Chem Soc J 38:1510-17 Ag '16

Pyrheliometer

- Can we put the sun to work? K. P. Frederick. Il Sci Am 115:329+ O 7 '16

Pyrimidines

- Mechanism of the action of bromine on 2-mercaptopyrimidines. T. B. Johnson and A. W. Joyce. Am Chem Soc J 38:1557-66 Ag '16
- Reduction of 2-mercapto-6-chloropyrimidines. T. B. Johnson and A. W. Joyce. Am Chem Soc J 38:1385-92 J1 '16
- Secondary-pyrimidine-nucleosides and their unique behavior on hydrolysis. T. B. Johnson and S. E. Hadley. Am Chem Soc J 38:1844-53 S '16
- Synthesis of 1, 3-diamines by reduction of 2-mercapto-6-oxypyrimidines. T. B. Johnson and A. W. Joyce. Am Chem Soc J 38:1854-60 S '16

Pyrite

- Canadian iron pyrites deposits. Iron Tr R 59:776 O 19 '16
- Feeding blast-furnaces in pyritic smelting. R. C. Sticht. Met & Chem Eng 14:537-8 My 1 '16
- Iron pyrites deposits in southeastern Ontario, Canada. P. E. Hopkins. map Am Inst Min E Bul 116:1361-9 Ag '16; Same cond. Eng & Min J 102:502-3 S 16 '16
- Norwegian copper and pyrites. Eng & Min J 102:862-3 N 11 '16
- Pyrite smelting at Mount Lyell. R. Sticht. Met & Chem Eng 14:54-5 Ja 1 '16
- Pyritic copper deposits of Kyshtim, Russia. A. W. Stickney. bibliog pls Econ Geol 10:593-633 N '15
- Rapid control method for the determination of sulfur in pyrites cinder. H. C. Moore. J Ind & Eng Chem 8:26-8 Ja '16
- Role of sulphur in pyritic smelting. R. C. Sticht. Met & Chem Eng 14:223-4 F 15 '16

Pyrocoll

- Constitution of the three symmetrical dinitropyrocolls. W. J. Hale and W. V. Hoyt. Am Chem Soc J 38:1065-71 My '16

Pyrogallol

- Pipettes especially adapted for use with alkaline pyrogallol. R. P. Anderson. diags J Ind & Eng Chem 8:133-5 F '16
- Reagents for use in gas analysis; the relative advantages of the use of sodium and potassium hydroxides in the preparation of alkaline pyrogallol. R. P. Anderson. J Ind & Eng Chem 8:999-1001 N '16
- Reagents for use in gas analysis; the specific absorption of alkaline pyrogallol in various pipettes. R. P. Anderson. diags J Ind & Eng Chem 8:131-3 F '16

Pyrometers and pyrometry

- Beighee electric recording pyrometer. Il Mach 22:810-11 My '16
- Characteristics of pyrometers. O. L. Kowalke. Am Gas Light J 104:261-2 Ap 24 '16
- Form of the Holborn-Kurlbaum optical pyrometer adapted to a wide range of laboratory uses. W. E. Forsythe. J Fr Inst 181:576-7 Ap '16
- Gibb I-Rite pyrometer. Il Mach 22:723-4 Ap '16; Iron Age 97:779-80 Mr 30 '16; Met & Chem Eng 14:400-1 Ap 1 '16; Iron Tr R 58:990 My 4 '16
- How electrical pyrometers are made. R. P. Brown. Il Iron Tr R 59:639-41 S 23 '16
- Morse optical pyrometer. W. E. Forsythe. Il diags Sci Am S 82:284-5 O 28 '16
- Pyrometer that operates on the principle of matching known and unknown light intensities. Il Sci Am 115:158 Ag 12 '16
- Radiation pyrometer; abstract. S. L. Brown. Elec W 67:331 F 5 '16

See also Thermocouples

Q

Quantity system of estimating

- Growth of the quantity system of estimating. G. A. Wright. Bldg Age 38:38 F '16
- Quantity estimating in plumbing business. W. Hutton. Metal Work 85:7 Ja 7 '16
- Real meaning to architects of the movement for the adoption of the quantity system. S. W. Jones. Am Inst Arch J 4:389-93 S '16

Quarries and quarrying

- Centrifugal pumps dispose of quarry waste. diag Eng N 76:508 S 14 '16
- Cost of quarry blasting. Munic Eng 51:144 O '16
- Electric power in a marble quarry. Il Engin-ner 122:308-9 O 6 '16
- Electrical equipment of the Alabama marble company. R. T. Brooke. Il Gen Elec R 19:319-22 Ap '16
- Electrically operated marble quarry. F. C. Perkins. Il Sci Am S 82:88 Ag 5 '16
- Electricity in marble-quarrying operations. Il Elec R & W Elec'n 69:363-6 Ag 26 '16
- Feldspars of the New England and north Appalachian states. A. S. Watts. diags U S Bur Mines Bul 92:71-95 '16

Quarries and quarrying—Continued

- Quarries for Kensico dam. W. F. Smith. *il plan Eng N 76:250-3 Ag 10 '16*
 Quarrying at Rockland lake. H. L. Hicks. *il Eng & Contr 45:512-14 Je 7 '16*
 Reducing quarry costs. S. R. Russell. *Concrete 9:sup41 O 16*
 Technology of marble quarrying. O. Bowles. *il diags plan U S Bur Mines Bul 106:1-167 '16*; Excerpt (Experiments in relieving strain breaks in quarries). *Eng & Contr 46:70-1 Jl 19 '16*
 Well drilling in modern quarrying. S. R. Russell. *Eng & Contr 46:155-6 Ag 16 '16*
See also Blasting; Mines and mineral resources

Accidents

- Quarry accidents in the United States during the calendar year 1914. A. H. Fay. *U S Bur Mines Tech Pa 128:1-43 '15*
Quartz lamps. *See* Electric lamps, Mercury vapor
Quay walls. *See* Wharves
Quebec (city)

Bridges

- Accident to the Quebec bridge. *diags Engineer 122:322 O 13 '16*
 Another Quebec bridge disaster. *Eng Rec 74:338-9 S 16 '16*
 Breakage of casting of rocker-joint bearing responsible for Quebec bridge disaster. *il diags Eng Rec 74:370-1 S 23 '16*
 Bridge building in the shop; how the gigantic members of the Quebec bridge are fabricated. *il Sci Am 115:192-3 Ag 26 '16*
 Cause of the Quebec bridge disaster. *il diags Ry Age 61:487-92 S 22 '16*
 Collapse of the Quebec bridge. *il Ry Age 61:456 S 15 '16*
 Computing the stresses in the Quebec rocker castings. *diags Eng N 76:650-3 O 5 '16*
 Did an underestimate of a coefficient of friction cause the Quebec bridge disaster? *Eng & Contr 46:354 O 25 '16*
 Disaster at the Quebec bridge. *diag Ry R 59:367-8 S 16 '16*
 Erection of Quebec bridge—programme for season 1916. *diags Engineer 121:496-7 Je 16 '16*
 Erection of Quebec bridge suspended span. A. J. Meyers. *il diag Eng N 76:522-4 S 14 '16*
 Erection of the south cantilever arm of the new Quebec bridge. *diags Engineer 122:363-4, 387-8 O 27-N 3 '16*
 Erection of the suspended span new Quebec bridge. G. V. Davies and N. C. McMath. *il diag Eng & Contr 46:276-8 S 27 '16*
 Erection progress on the Quebec bridge. A. J. Meyers. *il diags Ry Age 61:275-7 Ag 18 '16*
 Erection progress on the Quebec bridge. H. P. Borden. *Eng & Contr 45:196-7 F 23 '16*
 Full evidence on the fall of the Quebec bridge span. *il diags Eng N 76:572-5 S 21 '16*; Same cond. *Ry R 59:408-11 S 23 '16*
 Full-load secondaries were eliminated at Quebec. J. Mayer. *Eng N 76:517 S 14 '16*
 Further light on the Quebec bridge disaster. *il diags Sci Am 115:298-9+ S 30 '16*
 High stresses at center of Quebec rocker casting. F. P. Witmer; S. A. Keast. *Eng N 76:760-1 O 19 '16*
 New Quebec bridge. A. J. Meyers. *il diag Sci Am 114:480-1+ My 6 '16*
 Progress on the erection of the new Quebec bridge. H. P. Borden. *il Ry Age 59:1189-91 D 24 '15*
 Prominent bridge engineers express regret at Quebec bridge accident. *Eng N 76:622 S 28 '16*
 Quebec bridge. H. A. Pidgeon. *il Sibley J 31:39-42 N '16*
 Quebec bridge accident. *il diag Engineer 122:232-3, 236 S 15 '16*
 Quebec bridge accident. H. C. Baird; R. S. Foulds. *plan Eng N 76:857 N 2 '16*
 Quebec bridge accident and stress analysis. *Eng N 76:661-2 O 5 '16*
 Quebec bridge castings. *Iron Age 98:823 O 12 '16*
 Quebec bridge disaster. *il diags Sci Am 115:282-3 S 23 '16*

- Quebec bridge disaster. E. Godfrey. *diags Eng & Contr 46:356-7 O 25 '16*
 Quebec bridge disaster charged to casting. *il Iron Age 98:638-9 S 21 '16*
 Quebec bridge erection; progress in 1915. H. P. Borden. *il Eng N 75:20-2 Ja 6 '16*
 Quebec bridge suspended span falls into river in hoisting. *il Eng N 76:524-8 S 14 '16*
 Quebec rocker stresses. G. L. Bilderbeck. *Eng N 76:760 O 19 '16*
 Quebec suspended-span hoisting details completed. A. J. Meyers. *il diags Eng N 76:420-5 Ag 31 '16*
 Revolutionary methods used to float and hoist center span of Quebec bridge. *il diags Eng Rec 74:372-6 S 23 '16*
 Season's work on the Quebec bridge. A. J. Meyers. *il diags Ry Age 60:1143-5 My 26 '16*
 South cantilever arm of Quebec bridge completed. A. J. Meyers. *il diags Eng N 76:293-305 Ag 17 '16*
 Story of the Quebec bridge disaster. H. F. Stratton. *il Iron Tr R 59:685-8 O 5 '16*
 Suspended span of new Quebec bridge falls into river while being hoisted. *il diags Eng Rec 74:363-6 S 16 '16*
 What caused the Quebec failure? W. K. Palmer. *Eng Rec 74:480 O 14 '16*
 What lesson does the second Quebec bridge disaster teach? *Eng & Contr 46:269-70 S 27 '16*
 What was the cause of the initial failure at the Quebec bridge? *diags Eng Rec 74:432-3 O 7 '16*

Railroads

- Passenger station at Quebec, Canadian Pacific Ry. *il Ry R 59:546-8 O 21 '16*

Quebec (province)

- Building a big dam in wilds; St. Maurice dam. *il diags maps Eng N 75:876-80 My 11 '16*

Quicksilver. *See* Mercury**Quilts**

- New quilt fabric. *Textile World 51:1775+ Ap 8 '16*

Quinazolines

- Researches on quinazolines; a new and sensitive indicator for acidimetry and alkalimetry, and for the determination of hydrogenion concentrations between the limits of 6 and 8 on the Sorensen scale. M. T. Bogert and G. Scatchard. *Am Chem Soc J 38:1606-15 Ag '16*

R**Racing.** *See* Automobile racing**Radiation**

- Color temperature scales for tungsten and carbon. E. P. Hyde, F. E. Cady, and W. E. Forsythe. *J Fr Inst 181:418-20 Mr '16*
 Computing radiation for steam and hot water heating systems. C. L. Hubbard. *diags Dom Eng 74:359-60, 386-8; 75:37-8 Mr 18-25, Ap 8 '16*
 New radiation coefficients. W. Jones. *Heat & Ven 12:22-6 D '15*
 New relation derived from Planck's law. P. D. Foote. *U S Bur Stand Bul 12:479-82 F 3 '16*
 Pyranometer; an instrument for measuring sky radiation. C. G. Abbot and L. B. Aldrich. *Sci Am S 82:176 S 9 '16*
 Radiation and convection from a heated wire; abstract. T. Barratt. *Elec W 66:1327 D 11 '15*
 True temperature scale for tungsten and its emissive powers at incandescent temperatures. A. G. Worthing. *J Fr Inst 181:417-18 Mr '16*
 X-rays and the theory of radiation. *Sci Am S 82:80 Jl 29 '16*

See also Automobiles—Radiators; Black body; Heat radiation; Light; Radiators; Radioactivity; Solar radiation; Spectra; Ultra-violet rays; X rays

Radiator fans. *See* Automobiles—Fans**Radiator traps.** *See* Steam traps

Radiators

- Air-circulating radiator. *il* Power 43:477 Ap 4 '16
- Ardent direct radiator. *il* diag Heat & Ven 13:59 S '16
- Best position for a radiator in a room. *il* plan Heat & Ven 13:27-31 S '16
- Cenco gas steam radiator. *il* Metal Work 84:814 D 24 '15
- Determination of radiator sizes for hot water heating plants. F. Wegelius. Heat & Ven 13:24-7 Ja; 11-19 Ap '16
- Establishment of standard methods of proportioning direct radiation and standard sizes of steam and return mains. J. A. Donnelly. *diags* Am Soc Heat & V E 21:528-44 '15; Same. Dom Eng 72:366-8; 73:2-4 S 25-O 2 '15; Discussion. Am Soc Heat & V E 21:544-51 '15
- Gas-fired hot air radiators. H. T. Owens. *il* diag Am Gas Light J 104:177-8 Mr 20 '16
- Gas fired steam radiators for heating apartment houses. H. T. Owens. *il* Am Gas Light J 104:49-50 Ja 24 '16
- Gas steam radiator heated. Metal Work 84:764 D 17 '15
- H-and-C hot blast radiator. *il* Heat & Ven 13:54 Ja '16
- Installation of steam radiators and piping. *diags* Metal Work 85:510-11 Ap 14 '16
- Little Wonder tubular radiator. *il* Metal Work 85:366 Mr 10 '16
- New Presswood sheet metal radiator. *il* Heat & Ven 13:51-2 Mr '16
- Smith hot-blast radiator. *il* Heat & Ven 13:48-9 Je '16
- Space occupied by air in radiators. *diag* Metal Work 86:363-7, 439 S 22, O 6 '16
- Ventilating and humidifying specialties. *il* Metal Work 85:756 Je 2 '16
- Wall radiators installed around windows in heating of drill hall in La Grange, Ill., Masonic temple. *il* *diags* Dom Eng 77:70-1 O 21 '16
- See also* Automobiles—Radiators; Electric radiators; Heating; Hot water heating; Steam heating

Manufacture

- Bryant radiator nipple turning machine. *il* *diags* Mach 22:706-8 Ap '16

Repair

- Mending a broken radiator leg. *diags* Metal Work 85:317 Mr 3 '16

Testing

- Making a radiator efficiency test. C. A. Fuller. *diags* Metal Work 86:212-13 Ag 18 '16

Radiators, Electric. See Electric radiators**Radioactive substances**

- Density of lead from radioactive minerals. T. W. Richards and C. Wadsworth. Am Chem Soc J 38:221-7 F '16
- Isotopy. H. Schmidt. Sci Am S 82:55 Jl 22 '16
- Latest revision of radioaction data. Sci Am S 82:304 N 4 '16
- Periodic law. S. Dushman. Gen Elec R 18:617-21 Jl '15; Same. Sci Am S 81:44-6 Ja 15 '16
- Periodic system and the properties of the elements. W. D. Harkins and R. E. Hall. *diags* Am Chem Soc J 38:181-6 F '16
- Radio-active substances in the air and atmospheric fog; a study of atmospheric conditions of importance to the aviator. *il* Sci Am S 81:37-8 Ja 15 '16
- Radio-activity of allanite. L. S. Pratt. Am Inst Min E Bul 113:865 My '16
- Sir William Ramsay, the father of the new physical chemistry. *il* Sci Am 115:117 Ag 5 '16

See also Carnotite; Radioactivity; Radium; Thorium

Radioactivity

- Radiations from atoms and electrons. J. J. Thomson. *diags* Sci Am S 81:290-1, 306-7, 322-3, 338-9, 354-5, 370-1 My 6-Je 10 '16
- Radiations from exploding atoms. E. Rutherford. *il* *diags* Sci Am S 82:52-3 Jl 22 '16
- Structure of the atom. K. Fajans. Sci Am S 81:82-3, 102-3 F 5-12 '16

See also Carnotite; Electrons; Radioactive substances; Radiography; Radium; X rays

Radiography

- Application of X-rays to metallurgy. *il* Met & Chem Eng 14:345 Mr 15 '16
- Finding blowholes with the X-rays. C. H. Tonamy. *il* *diags* Foundry 43:455-6 N '15; Same. Iron Tr R 58:346 F 10 '16; Same cond. Iron Age 96:1054-5 N 4 '15
- Improvement in X-ray photography for legal purposes. *il* Sci Am 114:127 Ja 29 '16
- Photographing interior structure of concrete work. Concrete 9:126 O '16
- X-ray pictures of living plants. *il* Sci Am S 82:132 Ag 26 '16

Radioscope

- Radioscope for estimation of radio-active bodies. *il* Met & Chem Eng 14:346 Mr 15 '16

Radiotelegraph. See Wireless telegraph**Radiotelephony. See Wireless telephone****Radium**

- Bureau of mines and American radium production. Met & Chem Eng 15:275-6 S 15 '16
- Experiments on the concentration of radium in carnotite ores. A. G. Loomis and H. Schlundt. J Ind & Eng Chem 8:990-6 N '16
- Extracting radium from American ores. H. T. Wade. *il* Sci Am 114:194-5 F 19 '16
- Extraction and recovery of radium, uranium and vanadium from carnotite. C. L. Parsons and others. *il* U S Bur Mines Bul 104:1-124 '15; Abstracts. Eng & Min J 100:964 D 11 '15; Met & Chem Eng 13:965; 14:51-3 D 15 '15-Ja 1 '16; J Ind & Eng Chem 8:48-53 Ja '16
- Extraction of radium, etc., by the U. S. Bureau of mines. C. H. Viol. J Ind & Eng Chem 8:660-2 Jl '16
- Occurrence, geology and economic value of the pitchblende deposits of Gilpin county, Colorado. P. R. Alsdorf. Econ Geol 11:266-75 Ap '16
- On the extraction of radium, etc., by the U. S. Bureau of mines. C. L. Parsons. J Ind & Eng Chem 8:469-73 My '16
- Practical methods for the determination of radium. S. C. Lind. *il* *diags* J Ind & Eng Chem 7:406-10, 1024-9 My, D '15
- Production and use of radium. *diag* Elec W 67:105-6 Ja 8 '16
- Production of radium by the Bureau of mines. C. H. Viol. J Ind & Eng Chem 8:284-6 Mr '16
- Radium; abstract. B. B. Boltwood. Elec W 67:164 Ja 15 '16
- Radium and aerials. E. Leimer. Sci Am S 82:233 O 7 '16
- Radium and other luminous compounds; notes on a lecture by F. H. Glew. Illum Engr 9:249-50 Ag '16
- Radium from carnotite. H. Schlundt. Eng & Min J 102:550 S 23 '16
- Radium never seen in nature. Eng & Min J 101:720 Ap 22 '16
- Radium production in Bohemia. Sci Am 115:280 S 23 '16
- Radium, uranium, and vanadium in 1915. J Fr Inst 181:872-3 Je '16
- Self-luminous paint. W. S. Andrews. *diag* Gen Elec R 19:809-10 S '16; Same cond. Elec W 68:1015 N 18 '16

See also Radioactivity

Radium, Physiological effect of

- Injuries due to radium. T. Ordway. Sci Am S 81:254-6 Ap 15 '16

Raffinose

- Preparation of melibiose. C. S. Hudson and T. S. Harding. Am Chem Soc J 37:2734-6 D '15

Rafters

- Rules for finding lengths and bevels of rafters and braces. D. W. Daley. Bldg Age 38:53-4 S '16

Rags

- Save waste papers and rags. Am Ind 16:35-6 Ap '16

Rail. See Rails**Rail bonds**

- Bonds and bonding practice. G. H. Eveland. Elec Ry J 47:966 My 20 '16
- Clamps for track bond wires. *diags* Eng N 75:664 Ap 6 '16
- Making railway rails continuous by means of the electric arc. *il* Sci Am 114:617+ Je 10 '16

Rail bonds—Continued

- Modern practice in the construction and maintenance of rail joints and bonds in electric railways. E. R. Shepard. bibliog il U S Bur Stand Tech Pa 62:1-123 '16; Abstract. Elec Ry J 47:461-2 Mr 4 '16; Abstract. J Fr Inst 181:410-13 Mr '16
- New bonding methods developed for 150-lb. third-rail. il diags Elec Ry J 48:1092-4 N 25 '16
- New type bond for third rail. H. H. Febrey. il diags Elec Ry J 48:282-3 Ag 12 '16
- Portable bonding system which does not obstruct traffic. il Elec Ry J 47:706 Ap 8 '16
- Protected impedance bond. il Elec Ry J 48: 543 S 23 '16
- Rail bond testing. H. H. Febrey. diags Elec Ry J 46:1130-1, 1177-9 D 4-11 '15
- Soldered bonds make good record. E. J. Mc Ilraith. il Elec Ry J 48:938 O 28 '16
- Steel terminal casing increases strength of rail bond. il Elec Ry J 48:31 Jl 1 '16
- 3,000,000 circ. mil bonding for New York subway third-rail. diag Elec Ry J 48:940-1 O 28 '16

See also Rail joints; Railroads—Track; Spikes (railroad)

Rail cutting

- Reclaimed rail saw. E. T. Spidy. il diag Ry Mech Eng 90:359-60 Jl '16

Rail ending machine

- Newton rail ending machine. il Mach 22:339-40 D '15; Iron Tr R 57:1087 D 2 '15

Rail failures. See Rails—Failures**Rail fastenings**

- Experimental rail fastenings. diags Eng N 76: 727 O 19 '16
- Iron key for railway chairs. diags Engineer 122:61 Jl 21 '16

See also Rail bonds; Railroads—Track; Spikes (railroad)

Rail joints

- Ballou elongated nut for track bolts. il diags Ry R 57:800-1 D 18 '15
- Electric-welded joints installed at low cost. R. J. Smith. il Elec Ry J 48:68-9 Jl 8 '16
- Inefficient element in modern track design. J. B. Seymour. Ry Age 60:503-4 Mr 17 '16
- Joint welding in Youngstown, Ohio. il Elec Ry J 48:239-40 Ag 5 '16
- Mechanical joints cost more than welded. Elec Ry J 47:415 F 26 '16
- Method of eliminating low joints in track laid through stretch of ocean beach sand. C. A. Elliott. il Eng & Contr 46:267 S 20 '16
- Modern practice in the construction and maintenance of rail joints and bonds in electric railways. E. R. Shepard. bibliog il U S Bur Stand Tech Pa 62:1-123 '16; Abstract. Elec Ry J 47:461-2 Mr 4 '16; Abstract. J Fr Inst 181:410-13 Mr '16
- New type of rail joint invented by A. L. Clapp. diag Eng & Contr 46:437 N 15 '16; Eng N 76: 735 O 19 '16
- Palmer perfected rail joint. diags Ry R 58: 728-9 My 20 '16
- Palmer rail joint. il Ry R 57:834 D 25 '15
- Rail joint tests. M. H. Wickhorst. Elec Ry J 48:940 O 28 '16
- Rail joints. R. H. Findley. Elec Ry J 47:896-9 My 13 '16
- Rail joints on Philadelphia & Reading railway. diags Eng N 75:410 Mr 2 '16
- Riveted and welded track joint of low cost. D. P. Falconer. diags Elec Ry J 48:982-3 N 1 '16
- Track bolts of alloy steel. Eng N 75:206 F 3 '16
- Track life extended three years by electric welding. J. H. Sundmaker. Elec Ry J 47: 789 Ap 22 '16

See also Rail bonds

Rail laying. See Railroads—Track**Railings**

- Balustrade and seats inclosing the forecourt of the Casino, Villa Borghese, Rome. E. G. Lawson. il diag Am Inst Arch J 4:460-1 N '16
- Falling line system of handrailing. M. Williams. diags Bldg Age 38:36-8 O '16
- See also* Guard rails (for highways)

Railings, Concrete

- Concrete balustrades enhance appearance of bridges. L. N. Edwards. il Eng Rec 73:547 Ap 22 '16
- Expansion joint construction for concrete bridge railing. C. W. Martin. diag Eng & Contr 46:181 Ag 23 '16
- Finishing tool saves forms work on bridge handrail. R. C. Hardman. diags Eng Rec 73: 429-30 Mr 25 '16
- Forms for handrail on large viaduct used 66 times each. H. E. Ketchum. il Eng Rec 74: 332 S 9 '16
- Two railing details for concrete bridges. diags Eng N 75:855 My 4 '16

Railroad accidents. See Railroads—Accidents**Railroad accounting. See Railroads—Accounting****Railroad associations**

- Relations between subordinate railroad associations and the A. R. A. C. Burlingame. Ry Age 61:421-2 S 8 '16

Railroad bonds. See Railroads—Securities**Railroad bridges. See Bridges, Railroad****Railroad commissions**

- Divine right of state commissioners. Ry Age 60:60-1 Ja 14 '16

Railroad construction. See Railroads—Construction**Railroad crossings. See Grade crossings; Railroads—Crossings****Railroad education**

- How best to educate the road foreman, the engineer and the fireman. W. H. Corbett. Ry R 59:123-4 Jl 22 '16
- Joseph T. Ryerson & son scholarships American railway master mechanics' association. Ry R 58:566-8 Ap 22 '16

See also Railroads—Employees

Railroad employees. See Railroads—Employees**Railroad engineering**

- American railway engineering association 17th annual convention. Ry R 58:430-8 Mr 25 '16
- Committees of American railway engineering association complete another year of work. Eng Rec 73:415-18 Mr 25 '16
- Influence of modern engineering on the future of railway economics. O. Bates. Ry R 58:48-51 Ja 8 '16

See also Grade crossing elimination; Locomotives; Railroad surveying; Railroads—Construction; Railroads—Maintenance and repair; Railroads—Management; Railroads—Track

Railroad engineers. See Locomotive engineers**Railroad fares. See Railroads—Fares****Railroad labor. See Railroads—Employees****Railroad labor dispute, 1916**

- Adamson act. C. E. Hughes. Ry R 59:416-18 S 23 '16
- Adamson law. W. Wilson. Ry R 59:456-7 S 30 '16
- Adamson law held unconstitutional in test case. Ry Age 61:953 N 24 '16
- Adamson wage law. E. P. Ripley. Ry R 59: 491-2 O 7 '16
- Advisory committee and the eight-hour law. F. Trumbull. Ry Age 61:551 S 29 '16
- Basic eight-hour day question. Ry Age 61:484-6 S 22 '16
- Brotherhood interpretation of the Adamson act. Ry R 59:543-6 O 21 '16
- Catechism of the Adamson pay day law. Ry Age 61:553-5 S 29 '16
- Cause of the 80 per cent of unrepresented employees. Ry R 59:337-8 S 9 '16
- Conference on wage demands of train employees. Ry Age 60:1225-7, 1338-40 Je 9-16 '16
- Conferences on railway wage controversy. Ry Age 61:335-8 Ag 25 '16
- Congress and the eight-hour law. Ry Age 61: 450-1 S 15 '16
- Demands of enginemen and trainmen. Ry R 58:164-5 Ja 29 '16
- Demands of the train service employees. Ry R 58:304 F 26 '16
- Developments in the labor controversy. Ry R 59:174-6 Ag 5 '16
- Developments regarding the Adamson law. Ry R 59:720-2 N 25 '16

Railroad labor dispute, 1916—Continued

- Eight-hour day commission appointed. H. F. Lane. Ry Age 61:649-50 O 13 '16
- Eight-hour day railroad statute. Am Ind 17: 9-11 O '16
- Eight-hour law. E. P. Ripley. Ry Age 61:592 O 6 '16
- Eight-hour law. H. F. Lane. Ry Age 61:547-9 S 29 '16
- Eight-hour law in the political campaign. H. F. Lane. Ry Age 61:492-4 S 22 '16
- Eight-hour law test case selected. Ry Age 61: 994-5 D 1 '16
- Employees' 80 per cent movement. Ry R 59: 509-10 O 14 '16
- Employees' side of the eight-hour demands. Ry R 58:522 Ap 8 '16
- New tyranny. S. O. Dunn. Ry Age 61:505-6 S 22 '16
- Open letter to Henry Ford on the wage controversy. F. Trumbull. Ry Age 61:509-10 S 22 '16; Same. Ry R 59:415-16 S 23 '16
- Opinion on railway subjects. Ry R 59:250-1, 284-6 Ag 19-26 '16
- Petition by the unorganized railway employees. Eng N 76:714 O 12 '16
- President as mediator in wage controversy. Ry Age 61:291-3 Ag 18 '16
- President Wilson on the eight-hour pay day law. Ry Age 61:534 S 29 '16
- Proposed demands of engineers and trainmen. Ry Age 60:44-5 Ja 14 '16
- Railroads ask injunction against Adamson law. Ry Age 61:887-8 N 17 '16
- Railroads present counter-proposals. Ry Age 60:785-6 Ap 7 '16
- Railway strike averted by legislation with text of law. Ry Age 61:415-20 S 8 '16
- Railway strike ordered for September 4. Ry Age 61:370-9 S 1 '16
- Railway wage controversy. Ry Age 61:72-3 Jl 14 '16
- Railways advertise position on wage demands. Ry Age 60:1586-7 Je 30 '16
- Recent labor legislation. W. D. Hines. Eng & Min J 102:786 O 28 '16
- Report of Chamber of commerce committee on railroad wage controversy. Ry Age 60: 1045 My 12 '16
- Shipper and the strike. P. N. Beringer. Am Ind 17:11+ S '16
- Statement by the western railroads on the wage demands of the engineers and trainmen. Ry Age 60:206 F 4 '16
- Submission of wage controversy to I.C.C. requested. Ry Age 60:1535-7 Je 23 '16
- Train service employees' wage demands. Ry R 58:469-70 Ap 1 '16
- Trainmen's wage controversy. Ry R 59:267-70, 301-4 Ag 26-S 2 '16
- Truth and fiction about the eight-hour day. Ry Age 60:735-7 Mr 31 '16
- Unconsidered four-fifths outside the brotherhoods. Ry R 59:562-3 O 21 '16
- Wage controversy referred to mediation. Ry Age 61:245-6 Ag 11 '16
- Wage controversy with the train employees. Ry Age 61:33-4 Jl 7 '16
- Wage demands of train employees. E. P. Ripley. Ry Age 60:956 Ap 28 '16
- Was it a political frame-up? Ry Age 61:353-4 S 1 '16
- What about the other 82 per cent? T. H. E. Redding. Ry Age 61:181-2 Ag 4 '16
- What an eight-hour day is. Ry Age 60:150-1 Ja 28 '16
- What President Wilson should have said to the Brotherhoods, but didn't. Ry R 59:315-17 S 2 '16
- Railroad law**
- Commissioner Clements advocates a law to prevent railroad strikes. Ry R 59:724-5 N 25 '16
- Decisions in the second industrial railways case. Ry R 58:182-3 Ja 29 '16
- Federal bill of lading law; Pomerene bill; excerpts. Ry Age 61:451-2 S 15 '16; Ry R 59: 493-4 O 7 '16
- Proposed amendments to hours of service law. Ry Age 60:1043 My 12 '16
- Safety appliance act not limited to equipment being used in interstate commerce. Ry R 58:650-2 My 6 '16
- State railroad legislation in 1916. Ry Age 61: 1000-1 D 1 '16

Use of hand brakes unlawful. Ry Age 60:792 Ap 7 '16

See also Clayton act; Electric railroads—Law; Grade crossing elimination; Locomotives—Inspection; Public utilities—Regulation; Railroad labor dispute, 1916; Railroads—Clearance; Railroads—Rates; Railroads—Valuation; Railroads and state; Street railroad law

Railroad libraries

- Boston Elevated library. Elec Ry J 46:1118-19 D 4 '15
- Erie railroad library. Il Ry Age 60:677 Mr 24 '16

Railroad maps

- Acres of tracing cloth and hogsheads of ink. Sci Am S 81:101 F 12 '16

Railroad master blacksmiths' association, International. See International railroad master blacksmiths' association

Railroad motor cars. See Motor cars (railroad)

Railroad rates. See Railroads—Rates

Railroad records. See Railroads—Records

Railroad regulation. See Railroads and state

Railroad securities. See Railroads—Securities

Railroad shops. See Electric railroads—Shops; Railroads—Shops

Railroad signals. See Railroads—Signals

Railroad stations. See Railroads—Stations

Railroad superintendents. See Railroads—Officials

Railroad superintendents, Association of. See Association of railroad superintendents

Railroad supplies. See Railroads—Equipment and supplies

Railroad supplies industry

- Increases in prices of railway material. Ry Age 61:636-9 O 13 '16
- National railway appliances association exhibit, Chicago, Mar. 20-23. Il Iron Tr R 58: 723-4 Mr 30 '16
- Railway supply exhibit, Atlantic City, June 14-21, 1916. Iron Age 97:1498-9 Je 22 '16
- Railway supply man's point of view. See weekly numbers of the Railway review
- Rapid increase in exports of railway supplies. Ry R 59:375 S 16 '16
- Table talks of an autocrat. Published in the weekly issues of the Railway review beginning January 1, 1916
- United States united for trade in foreign lands. W. S. Hiatt. Ry Age 60:21-4 Ja 7 '16

Railroad surveying

- Cost of railroad surveys. V. L. Havens. Eng Rec 73:808 Je 17 '16
- Planimeter and plane-table for railway-valuation work. W. H. Rayner. Eng Rec 74:239-40 Ag 19 '16
- Resurveying the Ohio division of the B. & O. S. W. R. W. W. Gruber. Eng N 74:1230-1 D 23 '15

See also Railroad engineering; Railroad maps; Railroads—Curves and turnouts

Railroad switches. See Railroads—Switches

Railroad terminals. See Railroads—Terminals; Terminals

Railroad tie plates

- Specifications for steel tie plates. diag Ry Age 61:15-16 Jl 7 '16

Railroad tie plugs

- Machine for manufacturing tie plugs. C. B. & Q. R. R. Il Ry R 59:343 S 9 '16

Railroad ties

- Brands for crossties of Baltimore & Ohio R. R. Eng N 75:328 F 17 '16
- Economics of crossties reduced to figures. Eng Rec 73:698-9 My 27 '16
- Fungus of decay in railroad ties. Il Ry R 58: 265-6 F 19 '16
- Inspection and distribution of ties. Ry R 59: 215-16 Ag 12 '16
- New tie-treating plant on the Northwestern railway. L. J. Putnam. Il diags Eng N 75: 729-33 Ap 20 '16
- Perforation of fir ties before treatment. Il Ry R 59:288-9 Ag 26 '16
- Railway storekeepers' association committee report. Il Ry Age 60:1093 My 19 '16

Railroad ties—Continued

- Service tests of cross-ties; tabulation. Elec Ry J 47:167 Ja 22 '16
 Track maintenance. K. L. Van Auken. Ry R 58:412-15, 544-5 Mr 18, Ap 15 '16
 Training the inspection forces of the timber preservation department. B. & O. R. R. C. C. Schnatterbeck. Ry R 59:672-3 N 11 '16
 Utilization of old railroad ties. R. P. Crawford. Il Sci Am 115:349 O 14 '16
 Value of ties treated and untreated. E. W. Bright. Elec Ry J 47:504-5 Mr 11 '16
 Western larch for railway ties. H. S. Sackett. Ry R 59:368-9 S 16 '16
 Woods suitable for cross ties. R. Van Metre. Ry Age 60:124-5 Ja 21 '16; Excerpts. Elec Ry J 47:167 Ja 22 '16; Excerpts. Eng Rec 73:112-13 Ja 22 '16

See also Mine ties; Railroads—Construction; Railroads—Track; Wood preservation

Railroad ties, Concrete

- Corell reinforced concrete tie. Il Ry R 58:835-6 Je 17 '16
 Experimental track in Holland. K. den Tex. Il diag Ry Age 61:423 S 8 '16
 Reinforced concrete railroad tie. Il diag Concrete Cem 7:221 D '15
 What is to be the future of the concrete R. R. tie? J. H. G. Wolf. Concrete 9:164 N '16

Railroad ties, Steel

- Steel mine-track ties. diag Coal Age 10:556, 684 S 30, O 21 '16
 Steel tie spacing can be too great. L. A. Mitchell. Elec Ry J 46:1265-6 D 25 '15
 Steel ties used in shallow roadbed. Il Elec Ry J 48:543 S 23 '16
 Steel twin ties for concrete track rehabilitation. diags Elec Ry J 46:1181 D 11 '15

Railroad tracks. See Railroads—Track**Railroad trains. See Railroads—Trains****Railroad yards. See Electric railroads—Yards; Railroads—Yards****Railroads**

- Influence of modern engineering on the future of railway economics. O. Bates. Ry R 58:48-51 Ja 8 '16
 Railways in 1915. Engineer 121:15-16 Ja 7 '16
 See also Air brakes; Brakes; Bridges, Railroad; Cars; Commerce; Electric railroads; Elevated railroads; Freight car service; Freight cars; Interurban railroads; Locomotive shops; Locomotive terminals; Locomotives; Motor cars (railroad); Mountain railroads; Private car lines; Railroad engineering; Railroad law; Railroad ties; Rails; Railway mail service; Roundhouses; Steam engines; Street railroads; Subways; Terminals; Train dispatching; Transportation; Trestles; Tunnels and tunneling; also National industrial traffic league; also names of railroads, e.g. Union Pacific railroad

Accidents

- Accident bulletin no. 56 of the Interstate commerce commission. Ry Age 60:162-3 Ja 23 '16
 Accidents at grade crossings and to trespassers. A. Gordon. Ry Age 60:1323-5 Je 16 '16; Same abr. Good Roads n s 12:113-15 S 2 '16
 Amherst collision. Ry Age 60:1165 Je 2 '16
 Bletchley collision on London & North-Western Ry. Engineer 122:174 Ag 25 '16
 Bradford collision. Ry Age 60:952-5 Ap 28 '16
 Collision due to false signal indication at Rockledge, Tenn. diag Ry R 58:232-4 F 12 '16
 Commission's report on the wreck at Milford, Conn. Ry R 58:520-2 Ap 8 '16
 Disastrous collision with an unusual cause on the Nashville, Chattanooga & St. Louis, Dec. 23. diag Ry Age 60:104-5 Ja 21 '16
 Foreign specifications for railway material; rails, wheels, axles, tires. G. K. Burgess and P. D. Merica. U S Bur Stand Tech Pa 61:4-7 '16
 German railways and safety. W. B. Parsons. Ry Age 60:1574 Je 30 '16
 Interstate commerce commission's report on the Amherst wreck. Ry R 58:716-17 My 20 '16
 Investigation of Amherst accident. Ry Age 60:787-9 Ap 7 '16

- Investigation of the Milford collision. Ry Age 60:385-7 Mr 3 '16

- Investigation of the wreck at Felton, Pa., B. & O. R. R. diag Ry R 58:360-1 Mr 11 '16

- Italy's numerous accidents resulting from unpreparedness. W. S. Hiatt. Ry Age 60:1224 Je 9 '16

- Jarrow disaster. Engineer 120:621-2; 121:90 D 31 '15, Ja 28 '16

- Long freight trains and railway accidents. Ry Age 60:1033-8 My 12 '16

- Passengers burned to death at Bradford, Rhode Island. Ry Age 60:391-2 Ap 21 '16

- Quarterly and annual accident report of the Interstate commerce commission. Ry R 58:126-7 Ja 22 '16

- Railway accident returns for 1915. Engineer 122:6-7 Jl 7 '16

- Reduction in railway accidents in 1915. Ry Age 60:88-9 Ja 21 '16

- Report on Amherst collision, March 29. Ry Age 60:1080 My 19 '16

- Report on Felton collision. Ry Age 60:394 Mr 3 '16

- Report on Milford collision. Ry Age 60:792-3, 834 Ap 7-14 '16

- Report on the wreck at Bradford, R. I. Ry R 59:23-6 Jl 1 '16

- South Cheney, Wash., collision. Ry Age 60:1166 Je 2 '16

- To promote safety at highway crossings. Ry Age 59:1119-20 D 17 '15

- Train accidents; monthly summaries published in the Railway age gazette

- Warminster collision, Sept. 2. Engineer 122:256 S 22 '16

- Washout at abutment, Packard, Iowa, drops train from bridge. Il Eng N 75:1290 Je 22 '16

- Weedon accident. Engineer 120:480 N 19 '15

- Where German efficiency falls down. H. W. Faus. Ry Age 60:1329-32; 61:226 Je 16, Ag 11 '16

- Wreck on the Spokane Portland & Seattle Ry. at South Cheney. Il Ry R 58:329 Mr 4 '16

- See also Derailments; Electric railroads—Accidents; Railroads—Safety devices and measures; Railroads—Signals; Railroads—Trespassing

Accounting

- Association of American railway accounting officers 28th annual meeting. Ry Age 61:5-14 Jl 7 '16
 Is the ton-mile the proper basis for allocating railroad operating costs? P. M. La Bach. Eng Rec 73:639-40 My 13 '16
 Proper basis for allocation of maintenance expenses. J. A. Rockwood. Eng Rec 74:55-6 Jl 8 '16
 Railroad operating expenses and property values. A. M. Sakolski. J Account 22:101-11 Ag '16
 Railway storekeepers' association report of committee on accounting. Ry Age 60:1089-90 My 19 '16; Same. Ry Mech Eng 90:290-1 Je '16
 Simplified freight station accounting. C. Hine. Ry Age 61:420-1 S 8 '16
 Transportation officers' convention at Boston; home-route card endorsed. Ry Age 61:29-33 Jl 7 '16
 Units for comparing track upkeep costs. Elec Ry J 48:301, 363, 403 Ag 19-S 2 '16
 See also Railroads—Finance; Railroads—Records; Railroads—Valuation

Automatic stop

- Cost of installation of automatic train control in connection with automatic block signals. A. G. Shaver. Ry R 59:341-2 S 9 '16
 Government report on Gollos automatic train stop. Ry Age 60:1554 Je 23 '16

Bibliography

- See New York, New Haven & Hartford railroad—Bibliography

Brakes

- See Air brakes; Brakes

Buildings and structures

- American railway bridge and building association 26th annual convention; abstracts of reports. Ry Age 61:745-52 O 27 '16

Railroads—Buildings—Continued

- Competition for designs for railway camps. Eng N 75:819 Ap 27 '16
- Crescoted wood block floors for railroad buildings. il Ry Age 59:1145-9 D 17 '15
- Kreolite wood block paving and flooring for railroad stations. il Ry R 59:218-19 Ag 12 '16
- Mastic floors for railroad buildings. il Ry Age 61:154 J1 28 '16
- Portable concrete buildings for railways. A. M. Wolf. il Concrete 9:64 Ag '16
- Railroad shop, engine house and freight house floors; committee report. Ry Age 61:746-7 O 27 '16
- Railway storekeepers' association committee report on buildings and structures. Ry Age 60:1094-5 My 19 '16
- Steel car-repair shed with cement-tile roof. il diags Eng X 76:474-5 S 7 '16
- Store department buildings. plans Ry R 59:45-8 J1 8 '16
- Tile and cement section houses, Lehigh Valley R. R. il plans Ry R 58:389-91 Mr 18 '16

See also Bridges, Railroad; Coaling stations; Freight houses; Locomotive shops; Railroads—Shops; Railroads—Stations; Railroads—Terminals; Railroads—Tool houses; Railroads—Train sheds; Roundhouses; Warehouses

Cars

See Car lighting; Car trucks; Cars; Dining cars; Freight cars; Motor cars (railroad); Refrigerator cars; Sleeping cars; Tank cars; Wrecking cars

Cattle guards

- Horton roller cattle guard. diags Ry R 59:375 S 16 '16

Claim departments

- Claim economics. F. V. Whiting. Ry Age 60:1141-2 My 26 '16
- Cooperation of claim and operating departments. E. W. Sprague. Ry Age 60:1140 My 26 '16

Claims

- Association of railway claim agents' 27th annual convention. Ry Age 60:1139-42 My 26 '16
- Fair dealing with freight claims. R. H. Burr. Ry Age 60:353 F 25 '16
- Freight claim association 25th annual session. Ry Age 61:26-8 J1 7 '16
- Liability for goods damaged in transit. E. J. Buckley. Metal Work 86:153-4 Ag 4 '16
- Reducing loss and damage claims on the San Pedro Los Angeles & Salt Lake R. R. H. Elliott. Ry R 58:600-2 Ap 29 '16
- Reduction of over, short and damage claims. C. H. Brown and others. Ry Age 60:1543-7; 61:225-6 Je 23, Ag 11 '16
- Safety appliance act not limited to equipment being used in interstate commerce. Ry R 58:650-2 My 6 '16
- Securing co-operation of employes on loss and damage claims. A. G. Whittington. Ry R 58:95-6 Ja 15 '16
- Steam railroad claim work. A. M. Lee. Elec Ry J 48:309-10 Ag 19 '16

Clearance

- Minnesota commission adopts clearances. Eng Rec 73:393 Mr 18 '16
- Proposed clearance law. Ry Age 61:277 Ag 18 '16
- Railway engineering body adopts wider clearance. Eng Rec 73:446 Ap 1 '16
- Revised clearance regulations in Minnesota. diag Ry Age 60:447 Mr 10 '16

Concrete work

- Experience of 41 railways in small concrete jobs. Eng N 76:849-50 N 2 '16
- Handling concrete on small jobs; committee report. Ry Age 61:750 O 27 '16

Construction

- Bagdad railway and the European war. L. R. Freeman. il Ry Age 60:432-4 Mr 10 '16; Same. Sci Am S 81:294-5 My 6 '16
- Building the Chesapeake & Ohio Northern railway. il diags map Eng N 75:6-11 Ja 6 '16

Canadian Northern extension to Vancouver. V. J. Boland. il map Ry Age 60:210-12 F 4 '16

Construction of the Bingham & Garfield Ry. H. C. Goodrich. il maps Ry R 59:232-8 Ag 19 '16

Construction of the Chesapeake & Ohio Northern. il maps Ry Age 60:397-400 Mr 3 '16

Construction of the Hudson Bay Ry. il map Ry R 58:235-8 F 12 '16

Construction work on the Paducah & Illinois railroad. il map Ry Age 60:203-5 F 4 '16

Drainage drifts have apparently stopped slides at hillside grade separation. H. G. Wray. il plan Eng Rec 74:144-6 J1 29 '16

Four engineering innovations on the Magnolia cutoff of the Baltimore and Ohio railroad. F. L. Stuart. il diag Eng N 75:1218-22 Je 29 '16

Four-tracking of the Hudson division of the New York Central R. R. il Ry R 57:747-51 D 11 '15

Government railroad in Alaska—what two years and limited funds have accomplished. T. Riggs, jr. il map Eng Rec 73:600-3 My 6 '16

Handling of Filipino labor one of problems in construction of Baguio railroad. W. M. Butts. il Eng Rec 74:351-2 S 16 '16

How Australia builds its railroads. M. E. Kernot. Eng Rec 72:694-6 D 4 '15

Improvements at Pawtucket and Central Falls. R. I. il plans Ry Age 60:13-17 Ja 7 '16

Longest railway tunnel in America; Roger's Pass bore through the Selkirk mountains in British Columbia. il plan Sci Am S 81:152-3 Mr 4 '16

Material yards on railroad construction work. R. L. Morrison. Eng & Contr 46:335-7 O 18 '16

Men cheaper than machines on trunk-line railway construction in China. E. Park. il map Eng Rec 74:525-6 O 28 '16

New connecting link of the Burlington. il map Ry Age 60:1539-41 Je 23 '16

New cut-off on Norfolk & Western. il map Ry Age 60:847-50 Ap 14 '16

New line of Union Pacific R. R. through Echo Canyon, Utah. il Eng N 76:700-1 O 12 '16

Program of construction work shown graphically. diag Eng Rec 74:89 J1 15 '16

Railway construction for new Halifax ocean terminals. il Eng N 75:188-9 Ja 27 '16

St. Paul is doing intricate track-elevation work in Chicago with company forces. il map Eng Rec 74:75-7 J1 15 '16

Shortening the Lackawanna railroad. il (supp) diags Engineer 121:229-30 Mr 17 '16

Station-men system succeeds on the Alaskan Ry. Eng N 76:995 N 23 '16

12-mi. railway built by hand in five months; the Brinson Ry. Eng N 75:211 F 3 '16

Woodside-Winfield cut-off of the Long Island R. R. il Ry R 58:261-2 F 19 '16

See also Bridges, Railroad; Culverts; Curves; Earthwork; Elevated railroads; Grade crossing elimination; Railroad engineering; Railroad ties; Railroads—Buildings and structures; Railroads—Curves and turnouts; Railroads—Earthwork; Railroads—Electrification; Railroads—Location; Railroads—Maintenance and repair; Railroads—Terminals; Railroads—Track; Rails; Subways (streets); Trestles; Tunnels and tunneling

Construction statistics

See Railroads—United States

Cost

Estimated and actual cost of Baguio railway. F. Lavis; W. M. Butts. Eng Rec 74:539-40 O 28 '16

Cost of operation

Record of ten years. Ry R 58:326-7 Mr 4 '16

See also Locomotives—Cost of maintenance and operation

Crossings

Cobb shockless crossing now equipped for automatic operation. il diags Elec Ry J 48:733-4 O 7 '16

Eymon continuous crossing. Carrothers, O. il Ry R 58:706 My 20 '16

Railroads—Crossings—Continued

- Steel crossing foundation of the International steel tie co. il diag Ry R 58:792-3 Je 3 '16
 Steel railroad crossing structures growing in favor. il plan Elec Ry J 48:689 S 30 '16

See also Grade crossing elimination; Grade crossings; Railroads—Track

Curves and turnouts

- Calculating railroad curves. diag Coal Age 9: 181, 305 Ja 22. F 12 '16
 Determining the tangent of a compound curve. F. L. Beal. Eng N 76:993-4 N 23 '16
 Economics of curve location with particular reference to operating advantages. W. F. Rensch. Ry Age 60:314-15 F 18 '16
 First step is made in mathematical analysis of capacity in single track. Eng Rec 73:413-14 Mr 25 '16
 Measuring railway curves on the arc; correspondence. Eng N 75:1240; 76:324 Je 29, Ag 17 '16
 Origin of the Southern Pacific taper-curve system. W. Hood. Eng N 75:503 Mr 16 '16
 Reforming railway curves. F. Lavis. Eng N 76:468 S 7 '16
 Relation of wheelbase to radius of curve. E. R. Dunsford. diag Coal Age 9:1105 Je 24 '16; Same. Eng & Min J 102:137-8 J 15 '16
 Turnouts for narrow-gauge industrial railway track. R. D. Brown. diags Eng N 75:231-2 F 3 '16; Same. Coal Age 9:626-7 Ap 8 '16; Same. Eng & Min J 101:816-17 My 6 '16

See also Railroads—Location

Damages from floods, etc.

- How Louisville & Nashville repaired storm damage along Gulf of Mexico. il Eng Rec 72:758-9 D 18 '15
 Recent serious floods in eastern Iowa. il Ry Age 60:1575-6 Je 30 '16
 Repairing flood damage on the Southern. il map Ry Age 61:991-4 D 1 '16

Earthwork

- Common causes of railway slips and their prevention. diags Eng N 75:514-15 Mr 16 '16
 Keeping a cliff from falling on railway tracks. il Eng N 76:359 Ag 24 '16
 Long fill built from borrow on Indianapolis & Frankfort R. R. il diag Eng N 76:800-1 O 26 '16
 Methods of holding soft roadbed. C. M. & St. P. Ry. diags Ry R 59:683 N 18 '16
 Railway ditching trains. il Eng N 75:498 Mr 16 '16
 Raising the grade on a high embankment. diags Ry Age 60:907-8 Ap 21 '16
 6,000-ton rock slab pinned in place to save bridge. W. H. Warnecke. il Eng N 76:358-9 Ag 24 '16

Electric equipment

- Railway electrical engineers' 9th annual convention. Ry Age 61:811-5 N 10 '16; Ry R 59:631-4 N 4 '16
 Recent improvements in the electric lighting of steam railroad cars. R. C. Lanphier. il diags Am Inst E E Pro 34:1829-46 Ag '15; Discussion. 35:222-4 F '16

Electrification

- Advantages of St. Paul electrification show. il Eng Rec 74:41 J 18 '16
 Aspects of electrification finance. W. J. Clark. Gen Elec R 19:1007-9 N '16
 Aspects of heavy electric traction. E. H. McHenry. Elec Ry J 47:26-8 Ja 1 '16
 Baltimore & Ohio electrification—operation. il diags map Elec Ry J 47:1074-9 Je 10 '16
 Chicago association of commerce committee report on smoke abatement and electrification of railway terminals in Chicago. Eng & Contr 44:454-9 D 15 '15
 Chicago association of commerce smoke-abatement report. map Ry Age 59:1047-52 D 3 '15
 Chicago committee report on smoke abatement and terminal electrification. map Elec Ry J 46:1113-18 D 4 '15
 Chicago—electrification of the railways. Ry Age 59:1089-91 D 10 '15
 Chicago electrification report. Elec R & W Elec N 67:1080-1 D 11 '15

Chicago electrification report discussed at the New York railroad club. Elec Ry J 47:604-5 Mr 25 '16

- C., M. & St. P. electric operation. il Elec Ry J 47:638-40 Ap 1 '16
 Chicago, Milwaukee & St. Paul electric operation. A. H. Armstrong. il Elec Ry J 47:1130-3 Je 17 '16
 C., M. & St. P. Ry. electric traction a success. il Eng N 76:24-7 J 16 '16
 Chicago, Milwaukee & St. Paul Ry.—electrical operation. Ry R 58:519-20 Ap 8 '16
 Chicago, Milwaukee and St. Paul electrification. W. B. Potter. Gen Elec R 19:923 N '16
 Chicago, Milwaukee, and St. Paul railway electrification. il diag map Engineer 120: 454-5; 122:136-8, 144, 159-60 N 12 '15, Ag 18-25 '16
 Chicago, Milwaukee & St. Paul railway; electrification of the mountain district. W. D. Bearce. il map Gen Elec R 19:924-9 N '16
 Chicago, Milwaukee & St. Paul electrification—operation. il Ry Age 60:957-9; 61:23-5 Ap 28, J 17 '16
 Chicago, Milwaukee and St. Paul project—epoch in railway electrification; electric locomotives are installed for the first time to operate over several engine divisions. il Am Ind 17:24-6 Ag '16
 Chicago, Milwaukee & St. Paul railway electrification; substations. A. Smith. il diags Gen Elec R 19:973-9 N '16
 Chicago, Milwaukee & St. Paul railway; practical results obtained by electrification. C. A. Goodnow. il Gen Elec R 19:910-15 N '16
 Chicago—production of smoke by the railways of Chicago. Ry Age 59:1193-6 D 24 '15
 Chicago railroad terminals electrification declared financially impracticable. Elec W 66: 1279 D 4 '15
 Chicago report on electrification. Ry R 57: 727-34 D 4 '15
 Chicago—\$600,000 inquiry finds electrification will not solve smoke problem. maps Eng Rec 72:727-31 D 11 '15
 Chicago—smoke abatement and electrification of railway terminals. W. F. M. Goss. diags maps W Soc E J 21:310-29; Discussion. 329-43 Ap '16
 Chicago smoke abatement and railway electrification. Eng N 74:1141 D 9 '15
 Chicago smoke abatement report. W. N. Smith. Elec Ry J 46:1216-17 D 18 '15
 Chicago smoke abatement report; discussion. Ry Age 60:676-7 Mr 24 '16
 Chicago smoke and electrification; report. Ry Mech Eng 90:11-14 Ja '16
 Chicago smoke prevention and electrification of railroads. map Munic Eng 49:202-7 D '15
 Chicago—tentative designs for overhead contact system in the electrification of Chicago railway terminals. diags Ry R 58:6-15 Ja 1 '16
 Chicago—tentative designs for terminal facilities in the electrification of Chicago railways. diags map Ry R 58:96-101 Ja 15 '16
 Chicago terminal electrification—estimated costs. diags maps Elec Ry J 46:1159-67 D 11 '15
 Chicago terminals—cost of electrification; summary of the items entering into the expenditure for new equipment. Ry Age 59: 1125-8 D 17 '15
 Commercial aspects of electrification of steam roads. J. G. Barry. Gen Elec R 19:1006 N '16
 Committee declares electrification of Chicago terminals financially impracticable. Eng Rec 72:707-8 D 4 '15
 Considerations in railway power distribution. F. H. Shepard. Elec Ry J 47:29-30 Ja 1 '16
 Construction and operating details of Philadelphia electrification. G. Gibbs. Elec Ry J 47:203-5 Ja 29 '16
 Detroit river tunnel operation. il Elec Ry J 47:550-3 Mv 6 '16
 Diary of electric operation. C. M. & St. P. Ry. G. M. Hayden. Ry R 58:247-8 F 12 '16
 Electrical railways. H. M. Hobart. Engineer 120:606, 608, 628-9; 121:44-5, 68-9, 90-2, 105-8, 134-5, 149 D 24-31 '15, Ja 14-F 18 '16
 Electrification for freight service. Elec Ry J 47:5-6 Ja 1 '16

Railroads—Electrification—Continued

Electrification in Europe and America. W: Arthur. Elec Ry J 48:319-20 Ag 19 '16
 Electrification of freight yards in New York. map Elec Ry J 47:815-16 Ap 29 '16
 Electrification of railways in Chicago. Engineer 121:179 F 25 '16
 Electrification of steam railroads; directions in which this form of traction is likely to expand. G; Gibbs. il Sci Am 115:504-5+ D 2 '16
 Electrification of the London & Southwestern Ry. Ry R 57:835-6 D 25 '15
 Electrification of transportation lines. N. W. Storer. Elec Ry J 47:168 Ja 22 '16
 Electrification projects at Sydney. N. S. W. Ry R 58:112-13 Ja 15 '16
 Electrification schemes of Swedish state railways. Elec W 67:835-6 Ap 8 '16
 Future of the steam locomotive. J: E. Muhlfield. Ry R 58:40-2 Ja 8 '16; Same. Sci Am S 82:94-5 Ag 5 '16
 Manchester to Bury electrification. il diags map plans Engineer 121:34-6, 38, 52-5, 75-8, 101-3, 125-8, 167-9 Ja 14-F 11, 25 '16; Excerpt. Eng M 50:941-3 Mr '16
 New suburban electrification in England; Lancashire and Yorkshire railway. il diag Elec Ry J 47:434-42 Mr 4 '16
 Norfolk & Western electrification. il plan Ry Mech Eng 90:121-4 Mr '16
 Norfolk and Western railway electrification. il diags map Engineer 121:330-2 Ap 21 '16
 Norfolk & Western's electrified line—operation. il diag Ry Age 60:354-7 F 25 '16
 Operating trains across the Great Divide by power from water falls. il Sci Am 114:298+ Mr 18 '16
 Operation of the P. R. R. Philadelphia-Paoli electrification. F. G. Grimshaw. il Elec Ry J 47:680-4 Ap 8 '16
 Operation on the Norfolk & Western railway. F. E. Wynne. il map Am Inst E E Pro 35: 139-45 F '16; Excerpts. Elec Ry J 47:311-12 F 12 '16; Discussion. Am Inst E E Pro 35: 703-15 My '16
 Opportunities for electrification. A. H. Armstrong. Elec Ry J 47:28-9 Ja 1 '16
 Pennsylvania railroad—electrification. il diag map Engineer 121:218, 221-3 Mr 10 '16
 Pole lines of C. M. & St. P. electrification. il Elec R & W Elec'n 69:590-3 S 30 '16
 Possibilities of steam railroad electrification. W: Arthur. Ry Age 60:99-102 Ja 21 '16
 Power requirements in the electrification of Chicago railroads. Ry R 58:197-201 F 5 '16
 Progress in electrification during 1915. G: Gibbs. Ry Age 59:1233-4 D 31 '15
 Progress of high voltage direct current railways. G. H. Hill. Gen Elec R 19:1012-14 N '16
 Proposed extension of Riksgräusen railway. Elec Ry J 47:180 Ja 22 '16
 Railroads will demand central station energy. J: F. Wallace. il Elec W 68:118-20 Jl 15 '16
 Railway electrification. Engineer 121:143 F 18 '16
 Railway electrification. A. H. Armstrong. Gen Elec R 19:1009-12 N '16
 Railway electrification and cheap water power. Eng & Contr 45:456-7 My 17 '16
 Recent electrification; projects completed and advanced during 1915. il Eng M 50:624-7 Ja '16
 Relation of water power to transportation. L: B. Stillwell. Am Inst E E Pro 35:561-74 My '16; Abstract. Elec Ry J 47:822-3 Ap 29 '16
 St. Gothard electrification progress. map Elec Ry J 48:225-7 Ag 5 '16
 St. Paul electrification. C. A. Goodnow. Eng & Min J 100:924 D 4 '15
 Shildon-Newport branch of Northeastern railway—electrification. il diag Elec Ry J 48:4-9 Jl 1 '16
 Shildon-Newport branch of Northeastern railway—electrification. F: C. Coleman. il map Ry R 59:208-12 Ag 12 '16
 Shildon-Newport electrification scheme. il diags plan map Engineer 121:433-7, 452-5, 453 My 26-Je 2 '16
 Starting heavy trains on the Norfolk & Western electrified line. Ry Age 60:170 Ja 28 '16
 Steam railroad electrification. N. W. Storer. Elec Ry J 46:1212 D 18 '15

Swiss state railways electrification. J. Grande. Engineer 122:104-5 Ag 4 '16
 Three thousand volt direct current substations. il Power 44:179-80 Ag 1 '16
 1200-volt steam railway electrification in Lancashire, England. diags Elec Ry J 46:1124 D 1 '15
 Unevaluated factors in electrification. Q. W. Hershey. Elec Ry J 47:456 Mr 4 '16
 Use of continuous current for terminal and trunk-line electrification. N. W. Storer. diags Inst E E J 54:521-34; Discussion. 535-49, 664-7 My 1-Je 1 '16
 West Side improvement plans of New York Central railroad in New York filed. diags map Eng Rec 73:612-14 My 6 '16
 See also Electric locomotives; Electric railroads; Third rails

Employees

Ambitious railroad clerk. Ry Age 60:469-70 Mr 17 '16
 Apprentice school. R. J. Hettenbaugh. Ry Age (Mech ed) 89:633 D '15
 Apprentices on the Southern Pacific. T: G. Gray. Ry Mech Eng 90:97-8 F '16
 British methods of training railway apprentices. Ry R 58:347 Mr 4 '16
 British railway wages in 1913. Ry Age 61:294 Ag 18 '16
 Broad conception of apprenticeship. V. T. Kropidowski. Ry Mech Eng 90:146-7 Mr '16
 Canadian Pacific wage controversy. Ry Age 61: 845-6 N 10 '16
 Car department apprentices. B. F. Patram. Ry Mech Eng 90:579 N '16
 Cause of the 80 per cent of unrepresented employees. Ry R 59:337-8 S 9 '16
 Comforting delayed passengers. Ry Age 60:231-2 F 11 '16
 Comments on the protest to executives. Ry Age 61:806-9 N 3 '16
 Competition on housing railway construction gangs. Ry R 58:535-6 Ap 15 '16
 Conserving the supply of track laborers. J. P. Costello. Ry R 58:262-5 F 19 '16
 Continuation jobs for veteran employees. H. D. Walcomb. Ry R 59:160-2 Jl 29 '16
 Demand for the increase of large wages at the expense of small wages. Ry Age 60:279-80 F 18 '16
 Discriminating study of safety first. Ry Age 60:403-5 Mr 3 '16
 Earnings of train employees. Ry Age 61:137-8 Jl 28 '16
 Education of air brake mechanics. C. M. Drennan. Ry R 58:745-7 My 27 '16; Same cond. Ry Mech Eng 90:301-2 Je '16; Same. Ry Age 60:1040 My 12 '16
 Efficiency in bridge and building work. Ry R 58:886-90 Je 17 '16
 Efficiency in the railway bridge and building department. G: W. Rear. Eng & Contr 45: 39-41 Ja 12 '16
 Efficiency tests on the Pennsylvania. Ry Age 61:279-83, 330-2 Ag 18-25 '16
 Eight-hour day on construction work. Ry Age 60:1119 My 26 '16
 Employees' 80 per cent movement. Ry R 59: 509-10 O 14 '16
 English method of dealing with wage controversy. W. M. Acworth. Ry Age 60:1596-7 Je 30 '16
 Future of the section foreman. W. H. Edwards. Ry Age 60:131-2 Ja 21 '16
 Getting results in an apprentice school. H. V. Styers. Ry Mech Eng 90:99 F '16
 Help the apprentice to help himself. F. J. Borer. Ry Mech Eng 90:92 F '16
 Help the apprentices to help themselves. M. F. Cox. Ry Mech Eng 90:40 Ja '16
 High cost of expediency. Ry Age 61:443-4, 730-1 S 15, O 27 '16
 Hiring a section foreman. W. E. Schott. Ry Age 60:491 Mr 17 '16
 Hours of service of train employees. Ry R 58: 376-7 Mr 11 '16
 Housing extra gangs. Buffalo, Rochester & Pittsburgh Ry. il Ry R 59:560-1 O 21 '16
 How a great corporation got 5000 to play. C. G. Elliott. il Ry Age 61:129-43 Jl 28 '16
 How an industry trains its men; Santa Fe system. C. O. Price. il diags Eng M 52:23-32 O '16

Railroads—Employees—Continued

- How can I help the apprentice? J. H. Pitard. Ry Age (Mech ed) 89:612 D '15
- How can I help the apprentice? W. V. Hine-man. Ry Mech Eng 90:43 Ja '16
- How to encourage thrift among employees. W. N. Northcott. il Ry Age 60:874-9 Ap 21 '16
- Huge share of railway payroll goes to few men. J. O. Fagan. Ry Age 60:430-1 Mr 10 '16
- Importance of politeness on trains and at stations. F. R. Geer. Ry Age 61:586-7 O 6 '16
- Improving the clerk's opportunities. Ry Age 61:273 Ag 18 '16
- Loyalty. A. Moore. Ry Age 60:983 My 5 '16
- Mechanical department clerk. Ry Mech Eng 90:168 Ap '16
- Modern apprenticeship training. H. L. Burrhus. Ry R 59:40-3 Jl 8 '16
- Mutual beneficial association on the Pennsylvania. N. F. Dougherty. Ry Age 59:1093-5 D 10 '15
- Opportunities and possibilities in locomotive and car work. M. K. Barnum. Ry R 58:308-9 F 26 '16
- Our unbusinesslike train service. Ry Age 61:789-90 N 3 '16
- Permanent track organization on the Long Island. G. P. Williams. Ry Age 60:120-1 Ja 21 '16
- Productive efficiency. Ry Age 60:824-6 Ap 14 '16
- Proposed amendments to hours of service law. Ry Age 60:1043 My 12 '16
- Protest to American railroad executives. Ry Age 61:688 O 20 '16
- Public carrier and the wage earner. C. Nagel. Ry Age 60:1215-17 Je 9 '16
- "Punitive" overtime not warranted in railroad service. Ry R 58:482-3 Ap 1 '16
- Railroad clerk. V. R. Cooke. Ry Age 59:1188 D 24 '15
- Railway wages in 1915. Ry Age 60:1028 My 12 '16
- Railway wages reach high level in 1915. Ry R 58:685 My 13 '16
- Relation of foremen to men. T. E. Freeman. Ry Mech Eng 90:533-4 O '16; Same cond. Ry Age 61:409-10 S 8 '16
- Santa Fe apprentice conference, Topeka, May 25-27. Ry Mech Eng 90:363-6, 403-5, 415-17 Jl-Ag '16
- Scrap: human or material? H. D. Wolcomb. Ry Mech Eng 90:169-71 Ap '16
- Settling railroad wages. E. Lee. Ry Age 59:1128 D 17 '15; Same. Ry R 57:784 D 18 '15
- Simple measures by which a roadmaster can promote efficiency. A. W. Tabert. Ry Age 60:130 Ja 21 '16
- Take a real interest in the apprentice. A. MacCorkindale. Ry Age (Mech ed) 89:641 D '15
- Times are rotten ripe for a change. Ry Age 61:587-8 O 6 '16
- Track maintenance. K. L. Van Auken. Ry R 57:526-9, 660-3, 796-9; 58:133-5, 269-73 O 23, N 20, D 18 '15, Ja 22, F 19 '16
- Training boilermaker apprentices. il Ry Mech Eng 90:415-17 Ag '16
- Training men with reference to promotion. G. M. Bashford. Gas Age 38:423-5 O 16 '16
- Training of young men for promotion: the Santa Fe methods; with discussion. F. W. Thomas. Ry Age 61:760-3 O 27 '16; Same. Ry Mech Eng 90:597-600 N '16
- Transportation salesmen. J. E. Light. Ry Age 59:1246 D 31 '15
- Truth and fiction about the eight-hour day. Ry Age 60:735-7 Mr 31 '16
- Voice of the apprentice. J. C. Bowman and others. Ry Mech Eng 90:197-9 Ap '16
- What the boys think of apprenticeship; symposium. Ry Mech Eng 90:255-6 My '16
- What the individual should do to meet war-time prices. W. A. Summerhays. Ry R 59:207-8 Ag 12 '16
- "Wop" in the track gang. D. T. Ciolli. Ry R 59:373-5 S 16 '16; Discussion. 59:559 O 21 '16
- See also* Railroad education; Railroad labor dispute, 1916; Railroads—Management; Street railroads—Employees; Train dispatchers

Equipment and supplies

- Activities of a railroad test department. C. D. Young. Ry Age 61:158-9 Jl 28 '16

- Determination of efficiency in the supply department. H. C. Pearce. Ry Age 61:200-2 Ag 4 '16

- Foreign specifications for railway material; rails, wheels, axles, tires. G. K. Burgess and P. D. Merica. diags U S Bur Stand Tech Pa 61:1-132 '16

- Hose stripping machine. R. E. Brown. diags Ry Mech Eng 90:259-60 My '16

- Making bottom brake rods without welds. W. Constance. il Ry Mech Eng 90:37 Ja '16

- Portable tire heater. E. A. Murray. diag Ry Mech Eng 90:258-9 My '16

- Proposed railway equipment alloy standards. Foundry 44:284-5 Jl '16

- Railroading from a general storekeeper's point of view. J. G. Stuart. Ry Age 59:1200-1 D 24 '15

- Railway paint specifications—why? P. L. Maury. Ry R 57:770-1 D 11 '15

- Railway storekeepers' association proceedings of 13th annual convention, Detroit, Mich., May 15-17. Ry Age 60:1089-1100, 1136-7 My 19-26 '16; Ry R 58:708-13 My 20 '16; Ry Mech Eng 90:290-6 Je '16

- Railway supplies continue to advance in price. Ry R 59:3-5 Jl 1 '16; Same cond. Ry Age 60:1550 Je 23 '16

- Store department buildings. plans Ry R 59:45-8 Jl 8 '16

- Supply department methods on the Seaboard. il Ry Age 60:672-6 Mr 24 '16

- Training the inspection forces of the timber preservation department. B. & O. R. R. C; C. Schnatterbeck. Ry R 59:672-3 N 11 '16

- Waste and abuse of brass and bronze. R. R. Clarke. Ry Mech Eng 90:361-2 Jl '16

- What the individual should do to meet war-time prices. W. A. Summerhays. Ry R 59:207-8 Ag 12 '16

- What the supply car has done on the Santa Fe coast line. A. T. Phillips. Ry R 59:116-17 Jl 22 '16

- Woods used by the railroads. H. F. Weiss. Ry Age 61:353 S 1 '16

See also Air brakes; Brakes; Cars; Freight cars; Locomotives; Railroad supplies industry; Railroad ties; Railroads—Electric equipment; Railroads—Electrification; Railroads—Maintenance and repair; Railroads—Management; Railroads—Purchasing; Railroads—Safety devices; Railroads—Scrap material; Railroads—Shops; Railroads—Signals; Railroads—Tools and implements; Railroads—Water supply; Rails; Track scales; Turntables

Fare collection

- Machine collection of tickets and fares by Southern Pacific. W: S. Wollner. Ry Age 61:189-90 Ag 4 '16

Fares

- Higher passenger fares approved. Ry Age 59:1120 D 17 '15
- Increases allowed in western passenger fares. Ry Age 59:1134-7 D 17 '15
- Increases in passenger fares in western territory. Ry R 57:784-7 D 18 '15

See also Electric railroads—Fares; Street railroads—Fares

Finance

- Aspects of electrification finance. W: J. Clark. Gen Elec R 19:1007-9 N '16
- Boston & Maine; abstract of the majority report of the board of directors. Ry Age 60:289-90 F 18 '16
- British railways; capital invested. Engineer 122:297-9 O 6 '16
- Continuance of railway prosperity; views of leaders in transportation and trade. Ry R 58:56-62 Ja 8 '16
- Decline of railway dividends in 1915. Ry Age 61:176-7 Ag 4 '16
- Dividend changes. Ry Age 59:1239 D 31 '15
- Gilded stairs and marble halls. R. Gordon. il Eng M 50:708-21 F '16
- How railroads earn a dollar and how they spend it. Eng & Min J 162:439 S 2 '16
- Number of railway stockholders. Ry R 59:60-1 Jl 8 '16

Railroads—Finance—Continued

- Opportunity and responsibility of the railroad man. F. A. Vanderlip. Ry Age 61:836-9 N 10 '16
- Ownership of railway stock. Ry Age 60:1333-4 Je 16 '16
- Pere Marquette. map Ry Age 61:879-80 N 17 '16
- Railroad credit and the success of regulation. A. J. County. Ry Age 61:791-3 N 3 '16
- Railroads made big gain in year ended June 30. Eng Rec 74:436 O 7 '16
- Railway insolvencies in 1915. Ry R 58:22 Ja 1 '16
- Railway returns for the fiscal year 1915. Ry Age 60:247 F 11 '16
- Railway revenues and expenses for the fiscal year. Ry R 59:600-2 O 28 '16
- Railway situation in the Southwest. W. B. Scott. Ry Age 59:1231-2 D 31 '15
- Receiverships and foreclosure sales. Ry Age 59:1222-4 D 31 '15
- Reorganizations and railroad bonds. J. E. Blunt, jr. Ry Age 59:1191-2 D 24 '15
- St. Louis & San Francisco reorganization. Ry Age 60:64-5 Ja 14 '16
- Shall railway profits be limited? G. A. Post. Ry Age 61:381 S 1 '16
- Should the Rock Island be sold under foreclosure? Ry Age 60:777-8 Ap 7 '16
- Suit for dissolution of the Southern Pacific system. Ry R 57:766-7 D 11 '15
- Trend of railway earnings in the year 1915. F. H. Dixon. Ry Age 59:1237-9 D 31 '15
- Why Texas railroads are in receivers' hands. C. E. Schaff; W. B. Scott. Ry Age 59:1053-4 D 3 '15
- See also* Railroads—Cost of operation; Railroads—Securities; Railroads—Valuation; also names of railroads, e.g. Kansas City Southern

Fire protection

- Locating snow shed fires by transit. N. Searls. Eng & Contr 46:194-5 Ag 30 '16
- Railroad fire-fighting apparatus used in Canada. il Sci Am 114:661 Je 24 '16
- Railway fire protection association 3d annual meeting. Ry Age 61:602-5, 642-4 O 6-13 '16
- Spotting fires in 29 miles of wood snowsheds. il Eng N 76:458-9 S 7 '16

Fiscal year

- Ending the fiscal year on December 31 instead of June 30. F. Nay. Ry Age 59:1234-6 D 31 '15

Freight

- Ancient l. c. l. freight handling methods. W. L. Campbell. Ry Age 61:414 S 8 '16
- Do you send too many tracers? Factory 17: 610+ N '16
- Freight traffic routes around large cities. S. Rea. Eng N 75:185-6 Ja 27 '16
- Handling freight embargoes. Ry Age 60:1172 Je 2 '16
- Less-than-carload clearing house. H. A. Goetz. diag maps Ry Age 60:829-34 Ap 14 '16
- Measures for the improvement of l. c. l. service. C. A. Pennington and others. Ry Age 61:459-64 S 15 '16
- Opinion on automobilizing steam railways; correspondence. Eng & Contr 46:149-50 Ag 16 '16
- Our system of checking l. c. l. freight. W. F. Northrup. Ry Age 61:109-10 Jl 21 '16
- Simplified freight station accounting. C. Hine. Ry Age 61:420-1 S 8 '16
- Starting right in handling L. C. L. freight traffic. W. L. Burt and others. Ry Age 60: 5-10 Ja 7 '16
- Why not automobilize our railways? il Eng & Contr 46:50 Jl 19 '16

See also Freight car service; Freight cars; Freight handling; Railroads—Terminals; Railroads—Yards; Refrigerator cars; Terminals

Freight agents

- Local freight agent. F. Harrison. Ry Age 61: 148-9 Jl 28 '16

Freight trains

See Railroads—Trains

Fuel

- Fuel department. E. Walton. Ry Age 60:91 Ja 21 '16
- Fuel department—a constructive criticism. L. G. Plant. Ry Age 59:939-42 N 19 '15; Same. Ry R 58:110-12 Ja 15 '16
- Fuel economy and smoke prevention; report of committee of American railway master mechanics' association. Ry R 58:927-9 Je 24 '16
- Functions of a railroad fuel inspector. E. McAuliffe. Ry Mech Eng 90:286 Je '16
- International railway fuel association, 8th annual convention. Chicago, May 15-18. Ry Age 60:1081-7, 1120-30 My 19-26 '16; Ry R 58:717-28 My 20 '16; Ry Mech Eng 90:277-87 Je '16
- Promotion of fuel economy on the Rock Island system. C. Scholtz. diags Ry R 58:906-8 Je 24 '16
- What the transportation official can do to promote fuel economy; abstracts. W. H. Averill. Ry R 59:154-7 Jl 29 '16; Ry Age 60:1121-3 My 26 '16

See also Locomotives—Fuel

Geological departments

- Railway geological department. J. H. Watkins. Eng & Min J 102:931-3 N 25 '16

Government ownership

See Government ownership; Railroads and state

Grades

- 185-foot fill of Bessemer & Lake Erie railroad reaches beginning of last stage. il plan Eng Rec 74:14-16 Jl 1 '16

See also Grade crossings

Labor

See Railroads—Employees

Landscape gardening

- Applications of the principles of railway landscape gardening. I. T. Worthley. il Ry Age 60:897-8 Ap 21 '16
- Scientific landscape gardening on railroads. il plan Ry Age 60:895-7 Ap 21 '16

Law

See Railroad law

Lighting

See Car lighting

Location

- How location affects track maintenance. K. L. Van Auken. Eng Rec 74:292-3 S 2 '16
- Railroad location and construction through muskeg swamp. J. L. Pickles. Eng & Contr 45:275-6 Mr 22 '16; Same cond. Eng Rec 73: 327-8 Mr 4 '16; Abstract. Eng N 75:516-17 Mr 16 '16

See also Railroad surveying; Railroads—Curves and turnouts

Maintenance and repair

- Fall cleanup. K. L. Van Auken. Ry R 59:499 S 30 '16
- How Louisville & Nashville repaired storm damage along Gulf of Mexico. il Eng Rec 72:758-9 D 18 '15
- Maintenance expenditures on the Pere Marquette. F. H. Alfred. Ry Age 59:1184 D 24 '15
- Maintenance of way master painters' convention. Philadelphia, Oct. 17-19. Ry Age 61:705-7 O 20 '16
- Maintenance on the Rock Island. Ry R 58: 400 Mr 18 '16
- Repairing flood damage on the Southern. il map Ry Age 61:991-4 D 1 '16
- Roadmasters' 34th annual convention. Ry R 59:405-8 S 23 '16; Ry Age 61:512-16 S 22 '16
- System for standardizing maintenance of way work. E. Stimson. Ry Age 60:111-14 Ja 21 '16

See also Cars—Repair; Cars (section); Freight cars—Repair; Locomotive shops; Locomotives—Repair; Railroad ties; Railroads—Construction; Railroads—Curves and turnouts; Railroads—Damages from floods, etc.; Railroads—Equipment and supplies; Railroads—Management; Railroads—Shops; Railroads—Track; Rails; Wrecking cars

Railroads—Continued**Maintenance of way***See* Railroads—Track**Management**

- Car department problems. E. E. Griest. Ry R 59:321-4, 355-8 S 2-9 '16; Same cond. Ry Mech Eng 90:453-6 S '16
- Determination of efficiency in the supply department. H. C. Pearce. Ry Age 61:200-2 Ag 4 '16
- Discipline on the New York Central. G. H. Wilson. Ry Age 61:498 S 22 '16
- Division transportation official and fuel economy. W. H. Averill. Ry R 59:187-90 Ag 5 '16
- Duties of a roadmaster. J. W. Powers. Ry R 59:425-6 S 23 '16
- Efficiency in the bridge and building department. G. W. Rear. Ry Age 59:1160-2 D 17 '15
- Efficiency of railroad operation. S. O. Dunn. Ry Age 60:1083 My 19 '16; Same. Ry Mech Eng 90:278-9 Je '16
- Efficiency testing in train service. H. E. Haanel. Ry Age 61:155-7 J 1 28 '16
- Efficiency testing on the Pennsylvania. Ry Age 61:279-83, 312-13, 330-2 Ag 18-25 '16
- Fuel department—a constructive criticism. L. G. Plant. Ry Age 59:939-42 N 19 '15; Same. Ry R 58:110-12 Ja 15 '16
- How Australia builds its railroads. M. E. Ker-not. Eng Rec 72:694-6 D 4 '15
- Kansas City railroad collection bureau. H. W. Meyers. Ry Age 61:811-13 N 3 '16
- Keeping track of service tests. E. S. Barnum. Ry Mech Eng 90:337-8 J 1 '16
- Operating efficiency. Ry R 58:328 Mr 4 '16
- Operating study of the Rock Island. il map Ry Age 60:1065-71 My 19 '16
- Operation of the Norfolk & Western. il map Ry Age 60:739-44 Mr 31 '16
- Organization of the engineering department of a railway. V. K. Hendricks. Eng N 76:989 N 23 '16
- Railways, trade and state ownership. C. G. Howsin. Engineer 122:331-2 O 13 '16
- Reflections on riding in a steel car. G. S. Lee. Ry R 58:629-30 My 6 '16
- Studies in operation—the Erie railroad. il Ry Age 60:939-43 Ap 28 '16
- Supply department methods on the Seaboard. il Ry Age 60:672-6 Mr 24 '16
- Train dispatcher criticizes false economy. Ry Age 61:442-3 S 15 '16
- Value of the railroad scale inspector to his company. A. M. Van Auken. Ry R 59:49-50 J 1 8 '16
- Western Maryland—studies in operation. map Ry Age 61:183-9 Ag 4 '16
- What the transportation official can do to promote fuel economy; abstracts. W. H. Averill. Ry R 59:154-7 J 1 29 '16; Ry Age 60:1121-3 My 26 '16

See also Freight car service; Freight handling; Locomotives; Railroad engineering; Railroads—Claim departments; Railroads—Claims; Railroads—Employees; Railroads—Equipment and supplies; Railroads—Finance; Railroads—Freight agents; Railroads—Maintenance and repair; Railroads—Officials; Railroads—Public relations; Railroads—Rates; Railroads—Records; Railroads—Safety devices and measures; Railroads—Signals; Railroads—Yards; Scientific management; Train dispatching

Officials

- More lies about railway salaries. Ry Age 61:483-4 S 22 '16
- Opportunities for the railroad superintendent. C. H. Markham. Ry Age 61:327-8 Ag 25 '16
- Superintendent's new friends. Ry Age 61:879 N 17 '16

Operation*See* Railroads—Management**Passenger traffic**

- New influences affecting passenger traffic. S. M. Felton. Ry Age 61:997-8 D 1 '16

Public relations

- Asking the public for advice. Elec Ry J 47:214 Ja 29 '16

- Building a line to the public. A. Pace. Ry Age 61:324-5 Ag 25 '16
- Change in the attitude of the press. D. Willard. Ry Age 60:997-8 My 5 '16
- Comforting delayed passengers. Ry Age 59:1180 D 24 '15
- Cultivation of public opinion. J. T. Bowser. Ry Age 60:470 Mr 17 '16
- How I got customers to see my side. E. P. Ripley. Ry Age 61:238-9 Ag 11 '16
- Is it to be cooperation in the future? P. H. King. Ry Age 61:283-4 Ag 18 '16
- Poorly qualified railroad advocates. Ry Age 60:666 Mr 24 '16
- Present relations of railways and the public. J. Kruttschnitt. Ry Age 59:1226 D 31 '15
- What a railroad ticket covers. Ry R 58:305 F 26 '16

See also Railroads and state**Purchasing**

- Hearing regarding rules governing purchase of supplies under the Clayton act. Ry R 59:26 J 1 '16
- Regulation of railroad purchases. W. L. Stoddard. Ry Age 61:73-4 J 1 14 '16

Rails*See* Rails**Rates**

- Additional increases allowed in western rate case. Ry R 58:3-4 Ja 1 '16
- Advances allowed in eastern Canadian freight rates. Ry R 59:89-91 J 15 '16
- Advances in eastern live stock rates. Ry R 57:799-800 D 18 '15
- Ann Arbor R. R. loses in Michigan rate case. Ry R 58:361-2 Mr 11 '16
- Broad principles enunciated by another order in the Shreveport rate case. Ry R 59:253-5 Ag 19 '16
- Canadian railway commission approves advances in eastern freight rates. Ry Age 61:75-6 J 1 14 '16
- Change of railroad rates in West Virginia. J. W. Dawson. Coal Age 8:973-5 D 11 '15
- Commission's decision in cement rate case set aside. Ry R 58:342-3 Mr 4 '16
- Cost of maintaining private sidings. Ry Age 60:207-S F 4 '16
- Discrimination against interstate commerce. Ry Age 61:270-1 Ag 18 '16
- Far reaching effects of decision by Interstate commerce commission in iron ore case. map Iron Tr R 59:524-7 S 14 '16
- Interstate commerce commission; iron ore rate cases. J. S. Harlan. Ry Age 61:427-8 S 8 '16
- Lumber rate investigation opened in Chicago. Ry R 59:91-2 J 15 '16
- Missouri river-Nebraska cases. Ry Age 61:126-7 J 1 21 '16
- New England milk case. Ry Age 61:208-9 Ag 4 '16
- No Steel corporation rebates. Ry Age 59:1131-2 D 17 '15
- Open letter to the railroad commissions of Texas. J. M. Head. Ry Age 60:164-5 Ja 28 '16
- Passenger rates in New York; hearing by Public utilities commission. Ry R 58:279-80 F 19 '16
- Rates from Shreveport, La., to points in Texas. Ry Age 61:302-3 Ag 18 '16
- Reasonable freight rates (Tex.) Ry Age 61:532-3 S 29 '16
- Relation of railroads to foreign trade. F. Harrison. Ry Age 60:283-6 F 18 '16
- Revisions ordered in transcontinental rates under fourth section applications. Ry R 59:10-12 J 1 1 '16
- Transcontinental rate cases reopened; Shreveport controversy renewed. Ry Age 61:740-2 O 27 '16
- West Virginia-Ohio coal rates. H. K. Myers; J. J. Roby. Coal Age 9:132-3 Ja 15 '16
- See also* Private car lines; Railroads—Fares; Railway mail service

Records

- Chicago & Northwestern Ry. valuation methods. Eng N 74:1160-2 D 16 '15
- Coal distribution record system. J. G. Crawford. il Ry Age 60:1124-6 My 26 '16
- Daily field reports on construction work. G. H. Hailey. Eng N 76:994-5 N 23 '16

Railroads—Records—Continued

- Efficient railroad records. F. L. Hutchins. Ry R 58:409-12 Mr 18 '16
 Foreign car repairs and billing. E. S. Way. Ry Mech Eng 90:185-9 Ap '16; Same. Ry R 58:780-5 Je 3 '16
 Pass holder and writing flame. Ry R 59:354-5 S 9 '16; Ry Age 61:452 S 15 '16
 Power requirements in the electrification of Chicago railroads. Ry R 58:197-201 F 5 '16
 Reclaiming material on the Seaboard air line. il Ry Age 60:749-54 Mr 31 '16
 Track maintenance; reports and accounts. K. L. Van Auken. Ry R 58:875-9 Je 17 '16

Regulation

See Railroads and state

Repair shops

See Railroads—Shops

Right of way

- Protecting the right of way from encroachments. W. F. Rench. Ry Age 59:1142-3 D 17 '15

Rolling stock

- Upkeep of railway wagons. Engineer 120:623-4 D 31 '15

See also Cars; Freight cars; Locomotives; Motor cars (railroad); Motor trucks on rails; Railroads—Equipment and supplies; Railroads—Maintenance and repair; Refrigerator cars; Wrecking cars

Safety devices and measures

- Annual report of I. C. C. safety division. Ry Age 60:95 Ja 21 '16
 Baltimore & Ohio safety and sanitation rules. Ry Age 61:700 O 20 '16
 Eliminating railroad accidents arising from faulty switches. il Sci Am 114:642+ Je 17 '16
 Highway crossing accidents—their cause, and how they can be reduced. J. S. Rockwell. Ry R 59:558-9 O 21 '16
 House that Jack built: a "Safety first" film. il Ry R 58:162-3 Ja 29 '16
 How to give advice about safety—first; three best dialogues submitted in prize competition. Ry Age 60:153-4 Ja 28 '16
 Itinerant phonograph as a safety agent. il Ry R 59:541-2 O 21 '16
 National safety council 5th annual congress. Ry Age 61:735-40 O 27 '16; Ry R 59:550-3 O 21 '16
 1916 grade crossing campaign of the Long Island R. R. L. W. Allison. Ry R 59:513-15 O 14 '16
 Prevention of accidents. R. C. Richards. Ry R 59:548-50 O 21 '16
 Prevention of accidents at grade crossings; report of committee of American railway association. Ry Age 60:1219-20 Je 9 '16
 Proposed legislation to prevent grade crossing accidents. Ry Age 61:898-9 N 17 '16
 Report of the chief inspector, division of safety, Interstate commerce commission. H. W. Belknap. Ry R 58:105-7, 174-7 Ja 15, 29 '16; Same (pt 1). Ry Mech Eng 90:83-4 F '16
 Running passenger trains on the Pennsylvania. E. F. McKenzie. Ry Age 60:1574 Je 30 '16
 Safety first in motion pictures. il Ry Age 60:98 Ja 21 '16
 Safety first on the Baltimore & Ohio R. R. J. H. Baumgartner. il Ry R 59:507-9 O 14 '16
 Safety first organization. Lehigh & Hudson River Ry. C. F. Merrill. Ry R 59:561-2 O 21 '16
 Safety movement. Ry R 59:520-2 O 14 '16
 Safety movement on the Norfolk & Western Ry. il Ry R 59:553-5 O 21 '16
 Something wrong with safety first. C. J. Morrison. Ry Age 60:151-2 Ja 28 '16
 Undesired advice followed; fortunate consequences. W. E. Schott. Ry Age 60:348 F 25 '16
 Various experiences with safety-first: symposium. Ry Age 60:245-6 F 11 '16
 See also Railroads—Automatic stop; Railroads—Cattle guards

Sanitation

- Sanitation of railway passenger cars. T. R. Crowder. Ry Age 60:945-7 Ap 28 '16; Excerpts. Ry Mech Eng 90:241-2 My '16

Scrap material

- Chesapeake & Ohio scrap reclamation. H. M. Brown. il Ry Mech Eng 90:149-52 Mr '16
 Dismantling of cars. J. W. Gerber. Ry Age 60:1090-1 My 19 '16; Same. Ry Mech Eng 90:306-7 Je '16; Same. Ry R 58:774-5 Je 3 '16
 Efficient reclamation of bolts and nuts. E. T. Spidy. il diags plan Ry Mech Eng 90:33-4 Ja '16
 Gravity scrap classification dock, New York Central R. R., Collinwood, O. il Ry R 58:575 Ap 22 '16
 Handling of scrap. E. E. Griest. Ry R 59:357-8 S 9 '16
 How the Pennsylvania railroad handles its scrap. E. L., Shaner. il Iron Tr R 59:363-8 Ag 24 '16
 Lumber reclamation on the Baltimore & Ohio R. R. il plan Ry R 58:565-6 Ap 22 '16
 Railroad scrap pile system. F. West. il Iron Age 97:1437 Je 15 '16
 Reclaiming material; abstract of papers by E. J. McKernan and W. M. Robertson, with discussion, diags Ry Mech Eng 90:474-5 S '16
 Reclaiming material at local shops. E. A. Murray. il diags Ry Age (Mech ed) 89:631-3 D '15
 Reclaiming material on the Seaboard air line. il Ry Age 60:749-54 Mr 31 '16
 Reclaiming track material from scrap. M. E. Carroll. il Ry R 58:123-5 Ja 22 '16
 Reclamation of journal box packing and car oil. Buffalo Rochester & Pittsburgh Ry. C. E. Peiffer. Ry R 58:780 Je 3 '16
 Reclamation of scrap, abstracts. J. Harkins; J. H. Dairty. Ry Mech Eng 90:468-9 S '16; Same cond. Ry Age 61:319 Ag 25 '16
 Reclamation on the Rock Island. J. G. Kirk. il Ry Age 61:596-8 O 6 '16
 Reclamation; report of committee of Railway storekeepers' association. Ry Age 60:1095-7 My 19 '16; Same. Ry Mech Eng 90:293-5 Je '16
 Sale of scrap iron criticised by Massachusetts commission. Ry R 59:6-8 Ji 1 '16
 Scrap and reclamation on the Pennsylvania lines east. il Ry R 58:637-42, 666-7 My 6-13 '16
 Scrap and scrap classification; report of committee of Railway storekeepers' association. Ry Age 60:1090 My 19 '16; Same. Ry Mech Eng 90:291 Je '16
 Scrap reclamation on the Chesapeake & Ohio Ry. H. M. Brown. Ry R 59:324-6 S 2 '16
 Superior methods of reclamation. Buffalo Rochester & Pittsburgh Ry. il Ry R 57:754-6 D 11 '15
 Unique way of handling railroad scrap. F. L. Prentiss. il diags Iron Age 97:885-8 Ap 13 '16
 See also Railroads—Equipment and supplies

Securities

- American railroad securities held abroad; abstracts. L. F. Loree. Ry R 59:452-3 S 30 '16; Ry Age 61:700 O 20 '16
 Public control of railway capitalization. J. C. Clements. Ry Age 59:1227-8 D 31 '15
 Public ownership of railway securities. Ry R 59:270 Ag 26 '16; Same cond. Ry Age 61:360 S 1 '16
 Railroad bonds; abstract of report of committee of the Investment bankers association of America. Ry Age 59:1202 D 24 '15
 Railway securities regulation. F. Trumbull. Ry Age 59:1226 D 31 '15
 Rising cost of railway capital; tabulation. Ry Age 60:300 F 18 '16

Shops

- Advantages of standard practices in locomotive and car repairs. M. J. McCarthy. Ry R 58:196-7 F 5 '16
 Blower system ventilates railway blacksmith shop; Bessemer & Lake Erie shops. il Eng Rec 74:318 S 9 '16
 Building all-steel box cars. il Iron Tr R 58:287-90 F 3 '16
 Electric welding in railroad shops. G. Fox. il diags Ry Mech Eng 90:591-5 N '16
 Electrical operation of railroad shops; report of A. R. E. E. committee. Ry Age 61:843-4 N 10 '16

Railroads—Shops—Continued

- Essentials of shop efficiency; features of scientific management which are applicable to railroad shops. G. W. Armstrong. *Ry Mech Eng* 90:201-3 Ap '16
- Increasing shop output. H. D. Wolcomb. *Ry Mech Eng* 90:589-90 N '16
- Interesting car repair shed at Memphis, Tenn. *il diag Ry Age* 61:546-7 S 29 '16
- International railroad master blacksmiths' association 23d annual convention. *Ry Mech Eng* 90:463-9 S '16; *Ry Age* 61:316-20 Ag 25 '16; *Ry R* 59:277-9 Ag 26 '16
- Machine and erecting shops, Morgan's Louisiana & Texas R. R. *il Ry R* 58:859-60 Je 17 '16
- Machine shop tool equipment. H. D. Wolcomb. *Ry R* 58:339-41 Mr 4 '16
- Material delivery at the Macon shops. G. W. Alexander. *Ry Mech Eng* 90:359 JI '16
- Modern engine house facilities and methods. J. H. DeSalis. *Ry R* 58:314-15 F 26 '16
- Organizing to prevent breakdowns. *Factory* 17:604+ N '16
- Repairing angle cocks. H. W. Stull. *diag Ry Mech Eng* 90:309 Je '16
- Routing systems in the small shop. H. D. Wolcomb. *il Ry R* 58:642-5 My 6 '16
- Safeguards used on machine and wood-working tools at the shops of the Queen & Crescent route, Somerset, Ky. *il Ry R* 59:515-17 O 14 '16
- Toning up an organization; symposium. *Ry Mech Eng* 90:95-6 F '16
- Tool room equipment and tools. J. C. Bevelle. *il diags Ry Mech Eng* 90:478-9 S '16
- Value of attractive shop grounds. C. L. Dickert. *il Ry Mech Eng* 90:61 F '16
- See also* Car houses; Electric railroads—Shops; Locomotive shops; Locomotive terminals; Railroads—Terminals; Roundhouses

Sidings

See Railroads—Curves and turnouts

Signals

- Adoption of yellow signal lights on the Pennsylvania system. *Ry R* 59:231 Ag 19 '16
- Alternating current signal installation on the Grand Trunk. *il Ry Age* 60:17-18 Ja 7 '16
- Automatic block signals on the Atlantic Coast line. *il Ry Age* 61:67 JI 14 '16
- Better flagging. G. Selby. *Ry Age* 60:1118 My 26 '16
- Block signal and interlocking extensions in 1915. *Ry R* 58:69-70 Ja 8 '16
- Block signal statistics. *Ry R* 58:879-80 Je 17 '16
- Collision due to false signal indication at Rockledge, Tenn. *diag Ry R* 58:232-4 F 12 '16
- Counting mechanism for use in connection with light signals. *il Ry R* 58:522-3 Ap 8 '16
- "Day and night" danger signal. *Sci Am* 114:102 Ja 22 '16
- Daylight lamp signals on the Pennsylvania railroad. *diags Engineer* 122:195-6 S 1 '16
- Disastrous collision with an unusual cause on the Nashville, Chattanooga & St. Louis, Dec. 23. *il diag Ry Age* 60:104-5 Ja 21 '16
- Economics of labor in signal maintenance. *Ry R* 58:791-2 Je 3 '16
- Economics of railway signaling. A. G. Shaver. *Ry R* 58:46-8 Ja 8 '16
- Function of the distant signal. *Ry Age* 60:982, 1024 My 5-12 '16
- Fundamentals of signaling. K. L. Van Auker. *Ry R* 58:667-8, 880-1 My 13, Je 17 '16; Same (pt. 1). *Sci Am* S 82:48 JI 15 '16
- Hand signals for crossing watchmen. *il Ry Age* 60:165-6 Ja 28 '16
- Highway crossing signals. *Ry Age* 61:927 N 24 '16
- Highway crossing signals. *il Ry R* 59:564-5 O 21 '16
- Highway wigwag signal installed at Denver, Col. *il diags Elec Ry J* 48:151 JI 22 '16
- Importance of the distant signal. L. R. Clausen. *Ry Age* 60:981 My 5 '16
- Innovation in railway signaling. *il Sci Am* 113:524 D 11 '15
- Landmarks in signaling history. B. H. Mann. *Ry Age* 61:161 JI 28 '16
- Light signals on 440 miles of road. *il Ry Age* 61:403-4 S 8 '16

- Mileage of American railroads block signaled. *Ry Age* 59:1252-5 D 31 '15
- Position light signals for railways. L. C. Porter. *il Gen Elec R* 19:68-9 Ja '16
- Position light signals on the Pennsylvania. *il Ry Age* 61:117-19 JI 21 '16
- Position-light signals on the Pennsylvania R. R. *il diags Eng N* 76:877-8 N 9 '16
- Power equipment for alternating-current signaling at interlocking plants. H. M. Jacobs. *il diag Gen Elec R* 19:75-9 Ja '16
- Protection of railway signal circuits against lightning disturbances. E. K. Shelton. *Gen Elec R* 18:1127-8 D '15; Same. *Ry R* 58:183-4 Ja 29 '16
- Railway signal association report of committee on signaling practice. *Elec Ry J* 47:642-3 Ap 1 '16
- Railway signal association spring meeting, Chicago. *Ry R* 58:438-43 Mr 25 '16
- Railway signal association's 21st annual meeting. *Ry Age* 61:495-7 S 22 '16
- Revised standard code: signaling rules. C. C. Anthony. *Ry Age* 60:471-4, 781-4, 835-9 Mr 17, Ap 7-14 '16
- Scientific tests on signal interpretation. O. V. Fry. *il Ry Age* 61:289-90 Ag 18 '16
- Signal lights to be changed on the Pennsylvania system. *Elec Ry J* 48:480 S 16 '16
- Signal maintenance. A. G. Shaver. *Ry R* 58:748-9 My 27 '16
- Signaling progress in 1915. W. J. Eck. *Ry Age* 59:1232-3 D 31 '15
- Skillful use of the whistle. F. W. Lane. *Ry Age* 61:881-2 N 17 '16
- Special protection for a drawbridge. *il Ry Age* 61:793-4 N 3 '16
- Standardizing signals at highway crossings. *Ry Age* 61:179 Ag 4 '16
- Stepping stones in railroad signaling. B. H. Mann. *Ry R* 59:85-9 JI 15 '16
- Terminal signaling with 45-seconds headway. *il diags Ry Age* 61:633-5 O 13 '16
- Test of the Julian-Beggs train control signal system. *il Ry R* 58:743-4 My 27 '16
- Track instrument for crossing signals. *il Ry Age* 60:1592 Je 30 '16
- Train-meet whistle-signal board. *diags Ry Age* 60:1229-30 Je 9 '16
- Upper left hand quadrant suspended signals on the New Haven. *diag Ry Age* 60:434-6 Mr 10 '16
- Utilizing the pressure on railroad rails to operate electric crossing signals. *il diags Sci Am* 115:418 N 4 '16
- Why maintain crossing bells? *Ry Age* 61:983 D 1 '16
- Williams' disappearing switch light. *diag Ry Age* 59:1199-1200 D 24 '15
- See also* Electric railroads—Signals; Railroads—Automatic stop

Single rail

See Suspended railways

Snow protection and removal

- Fighting snow on Long Island. C. King. *Ry Age* 60:117-18 Ja 21 '16
- Keeping the line open on the plains. W. G. Dungan. *Ry Age* 60:118-19 Ja 21 '16
- Snowsheds and tunnels on the Great Northern Ry. *diags Eng N* 75:1168-70 Je 22 '16

Specifications

- Foreign specifications for railway material; rails, wheels, axles, tires. G. K. Burgess and P. D. Merica. *diags U S Bur Stand Tech Pa* 61:1-132 '16

Standards

- Compression test for bronze; New York Central R. R. *Eng N* 75:501-2 Mr 16 '16

Stations

- Central railway station at Tokyo, Japan. C. Potter. *il Eng N* 74:1214-15 D 23 '15
- Central railway station in Leipsic. *il Ry Age* 61:464 S 15 '16
- Gilded stairs and marble halls. R. Gordon. *il Eng M* 50:708-21 F '16
- Hot water heating for a railroad station in a cold climate; Union Pacific system at Pocatello, Idaho. *il Heat & Ven* 13:16-18 Ag '16

Railroads—Stations—Continued

Improvements at Pawtucket and Central Falls, R. I. il plans Ry Age 60:15-16 Ja 7 '16

Lackawanna improvements at South Orange, A. B. Cohen. il diag plan Ry Age 60:683-7 Mr 24 '16

Large passenger station at New Orleans. il plans Ry Age 60:1176-9 Je 2 '16

Los Angeles station provides unusual conveniences for passengers. il diags Eng Rec 72:783-4 D 25 '15

New passenger station at Buenos Aires. il Ry Age 60:1134-6 My 26 '16

New Union passenger facilities at Dallas, Tex. il plans Ry Age 61:889-94 N 17 '16

Passenger station at Quebec, Canadian Pacific Ry. il Ry R 59:546-8 O 21 '16

Passenger station improvements of the Baltimore & Ohio R. R. at Pittsburgh, Pa. Ry R 58:2-3 Ja 1 '16

Passenger stations of moderate size; committee report. Ry Age 61:749 O 27 '16

Pennsylvania railroad's improvements at Wilkensburg, Pa. il plan Ry R 59:335-7 S 9 '16

Plan for Lehigh Valley station at Buffalo places train shed columns between tracks. diags Eng Rec 73:256-8 F 19 '16

Progress on the new Chicago Union station. il diag plan Ry Age 61:802-5 N 3 '16

Reconstruction of Denver Union station. il plans Ry Age 60:795-8 Ap 7 '16

Santa Fé railroad station, San Diego, Cal.; views and plan. Brickb 25:pl 8-9 Ja '16

Small railroad station that pleases the eye; South Orange, N. J. il plan Eng Rec 73:542 Ap 22 '16

Soo terminal type of station, being built by Lackawanna at South Orange, nears completion. il diags plan Eng Rec 73:378-81 Mr 18 '16

Track elevation and station at Fort Wayne, Ind. il diags plan Eng N 75:492-5 Mr 16 '16

Union station at Denver, Colo., nearing completion. il Eng N 75:1012-13 My 25 '16

Unique passenger station at Cooperstown, N. Y. il Ry Age 61:239-40 Ag 11 '16

Use of brick for station platforms. E. G. Zorn. il Ry R 58:4-5 Ja 1 '16

Waiting room of the New York Central railroad station, at Rochester, N. Y.; view and plan. Arch & Bldg 48:pl 33, detail sheet 6 Je '16

Warm-air furnace to heat railroad station. plan Metal Work 85:73-4 Ja 7 '16

See also Railroads—Buildings; Railroads—Terminals; Railroads—Train sheds; Railroads—Yards

Statistics

Australian and New Zealand railways. Engineer 120:624 D 31 '15

Comparative railway statistics, United States and foreign countries, 1913. Bur Railway Econ misc ser 25:1-78 '16; Abstract. Ry Age 61:903-4 N 17 '16

How prosperous are the railways, in fact? Ry Age 60:422-4 Mr 10 '16

Mileage of American railroads block signaled. Ry Age 59:1252-5 D 31 '15

Operation of the railroads in New England. W. J. Cunningham. Ry Age 60:1167-72 Je 2 '16

Railway construction statistics for 1915. Ry Age 59:1247-51 D 31 '15

Railway revenues and expenses for the fiscal year ended June 30, 1916. Ry R 59:600-2 O 28 '16

Record of ten years. Ry R 58:326-7 Mr 4 '16

Revenues and expenses for June and the fiscal year. Ry R 59:487 O 7 '16

Revenues and expenses in 1916. Ry Age 61:482-3 S 22 '16

Statistics of railways in the U. S. for fiscal year 1914-15. Ry R 59:9-10 Jl 1 '16

Steam railroad revenues in 1916. Elec Ry J 48:972 N 4 '16

Steam railroad statistics to June 30, 1915. Ry Age 60:1589-91 Je 30 '16; Abstract. Elec Ry J 48:103 Jl 15 '16

See also Railroads—Accidents; Railroads—Finance; Railroads—United States

Stores

See Railroads—Equipment and supplies

Supplies

See Railroads—Equipment and supplies

Surveying

See Railroad surveying

Switches, frogs, etc.

Eliminating railroad accidents arising from faulty switches. il Sci Am 114:642-4 Je 17 '16

Frogless switch. L. Smith. diags Coal Age 10:831 N 18 '16

Low voltage switch movements. il Ry R 58:550-1 Ap 15 '16

Steam piping protects Erie switches from snow and ice. L. A. Francisco. il Eng Rec 73:349 Mr 11 '16

See also Railroads—Curves and turnouts; Railroads—Track

Switching

Switching cars by magnetic coupling. diags Sci Am 115:18 Jl 1 '16

Taxation

See Railroads—Valuation

Terminals

Cleveland & Youngstown R. R. freight terminal project in Cleveland. W. E. Pease. il map Ry R 57:781-3 D 18 '15

Coating steel at Grand Central terminal with cement gun. W. F. Jordan. il Eng N 75:1008-10 My 25 '16

Design of large passenger terminals. T. L. Busfield. Ry Age 60:989-93 My 5 '16

General track and building plan for Chicago Union station is made public. plans Eng Rec 74:558-60 N 4 '16

Grade-crossing elimination at Memphis bridge terminals. J. H. Weatherford. il diags map Eng N 76:160-1 Jl 27 '16

Illinois Central presents terminal plans. il Eng Rec 74:404 S 30 '16

Illinois Central proposes three-level union station for Chicago. il Elec Ry J 48:537 S 23 '16

Illinois Central R. R.'s plan for new terminal in Chicago. il plan Ry R 59:403-5 S 23 '16

Illinois Central station at Chicago. plans Ry Age 61:517-19 S 22 '16

Lehigh Valley railroad terminal improvement, Buffalo, N. Y. il plans Arch & Bldg 48:163-4, pl 50-1 O '16

Lehigh Valley terminal at Buffalo. il diags plan Ry Age 61:445-9 S 15 '16

Modern terminal layout for passenger equipment. il diags map Ry Age 60:343-7 F 25 '16

Necessity for improved systems at railway terminals. A. J. Marshall. Ry R 58:483-5 Ap 1 '16

New freight terminal of the Lehigh Valley R. R. at Buffalo, N. Y. il Ry R 58:89-90 Ja 15 '16

New railway terminals planned for Atlanta, Ga. il Eng N 76:715 O 12 '16

New terminal is under way at San Antonio. D. A. Tomlinson. map Eng Rec 74:473 O 14 '16

Passenger terminal inspection. R. S. Mounce. diag Ry Mech Eng 90:239-41 My '16

Pennsylvania freight terminal at Chicago. il plans Eng Rec 74:594-5 N 11 '16

Progress on the new Chicago Union station. il diag plan Ry Age 61:802-5 N 3 '16

Railroad terminal in New Orleans now open. il Eng Rec 73:765 Je 10 '16

Railway terminal built over large drainage channel at Buffalo, N. Y. C. C. Hurlbut. il diag Eng N 76:436-7 S 7 '16

Study in electrified freight terminals; New York Central's proposed west side improvements, New York city. map plans Ry R 59:142-8 Jl 29 '16

Tentative designs for terminal facilities in the electrification of Chicago railways. diags map Ry R 58:96-101 Ja 15 '16

Valuation of Rock Island terminal zone in Chicago presents many special problems. C. W. Stark. Eng Rec 74:410-12 S 30 '16

Railroads—Terminals—Continued

Wiring of a railroad passenger service terminal. il Elec R & W Elec'n 68:466-70 Mr 11 '16

See also Locomotive terminals; Railroads—Construction; Railroads—Stations; Railroads—Train sheds; Railroads—Yards; Street railroads—Terminals; Terminals

Bibliography

List of references on railroad terminals. Bureau of railway economics, Washington, D. C. 41p Ap 1 '16 (Typew)

Ticket offices

Centralized ticket offices in Kansas City. plan Ry Age 60:1028 My 12 '16

Tickets

Herrington revolving ticket case, Southern Pacific co. il Ry R 58:533-4 Ap 15 '16
Multi-route interline tickets. Ry Age 60:885-6 Ap 21 '16

Ties

See Railroad ties

Tool houses

Caring for locomotive tools. J: F. Long. il Ry Mech Eng 90:536 O '16
Tool houses from old box cars. diags Ry R 59:71-2 Jl 15 '16

Tools and implements

American railway tool foremen's association 8th annual convention. Ry Mech Eng 90:470-80 S '16; Ry Age 61:355-8 S 1 '16; Ry R 59:307-9 S 2 '16

Determining the proper length of track wrenches. E. Stimson. Ry Age 60:317-18 F 18 '16

Electric furnaces for tempering tools. il Ry Mech Eng 90:423-4 Ag '16

Electric versus pneumatic portable tools; report of A. R. E. E. committee. Ry Age 61:843 N 10 '16

Reclaiming broken track tools. Elec Ry J 47:615 Mr 25 '16

Special tools for the car department. E. E. Griest. diags Ry Mech Eng 90:452 S '16

See also Tamping machines

Track

Ballasting track by contract. diags Eng N 75:828-30 My 4 '16

Concrete street railway track foundation constructed by penetration, Baltimore, Md. R. K. Compton. il Eng & Contr 45:334-5 Ap 5 '16

Concreting soft spots in railway roadbed. Eng N 75:685 Ap 13 '16

Drainage of railway roadbeds. M. C. Blanchard. il Ry Age 60:307-8 F 13 '16; Same. Eng & Contr 45:173-4 F 16 '16; Same. Eng N 75:240-2 F 3 '16

Experimental track in Holland. K. den Tex. il diag Ry Age 61:423 S 8 '16

Fall cleanup. K. L. Van Auken. Ry R 59:449 S 30 '16

High unit pressures found in experiments on distribution of vertical loading through sand. M. L. Enger. il diags Eng Rec 73:106-8 Ja 22 '16; Same. Eng & Contr 45:53-6 Ja 19 '16; Same. Ry R 58:129-32 Ja 22 '16; Same cond. Ry Age 60:321-3 F 18 '16; Abstract. Am Soc M E J 38:267-8 Mr '16

How location affects track maintenance. K. L. Van Auken. Eng Rec 74:292-3 S 2 '16

Imperial pneumatic tie tamper. W: H. Armstrong. il Ry R 57:789-91 D 18 '15

Inefficient element in modern track design. J: B. Seymour. Ry Age 60:503-4 Mr 17 '16

Laying rail without spacing joint ties. E. D. Swift. Ry Age 60:303 F 18 '16

Location of passing sidings on single track. F. L. Dodgson. Ry Age 59:1197-9 D 24 '15

Oiling rails and fastenings to prevent corrosion. il Eng N 76:847-8 N 2 '16

Permanent track organization on the Long Island. G. P. Williams. Ry Age 60:120-1 Ja 21 '16

Principles governing the allotment of new rail. Ry Age 60:309-10 F 18 '16

Queen & Crescent has carried out extensive program to improve drainage of roadbed. J. T. Bowser. il Eng Rec 74:625-6 N 18 '16

Railway-track anchors. diags Eng N 75:471 Mr 9 '16

Recent developments in roadbed drainage. W. F. Rench. il Ry Age 60:911-12 Ap 21 '16

Russian standards of track construction. il diags Ry Age 60:320 F 18 '16

Sheet piling a remedy for soft spots in wet cuts. E. L. Sinclair. diags plan Eng Rec 73:72-3 Ja 15 '16

Simple measures by which a roadmaster can promote efficiency. A. W. Tabert. Ry Age 60:130 Ja 21 '16

Standard track organization of the Baltimore & Ohio. W. C. Nisbet. Ry Age 60:491-2 Mr 17 '16

System for standardizing maintenance of way work. E. Stimson. Ry Age 60:111-14 Ja 21 '16

Tables for the distribution of track materials. K. L. Van Auken. Ry Age 59:1151-2 D 17 '15

Thomas combined tie plate and rail anti-creeper. il diags Ry R 58:554-5 Ap 15 '16

Track foundation. Ry R 59:252-3 Ag 19 '16

Track maintenance. K. L. Van Auken. Ry R 57:526-9, 660-3, 796-9; 58:133-5, 269-73, 412-15, 544-5, 754-7, 875-9; 59:247-50, 379-82, 696-9 O 23, N 20, D 18 '15, Ja 22, F 19, Mr 18, Ap 15, My 27, Je 17, Ag 19, S 16, N 18 '16

Value of organization and system for maintenance of way gangs. J. T. Bowser. Ry Age 59:115 D 17 '15

See also Electric railroads—Track; Grade crossings; Rail bonds; Rail fastenings; Railroad ties; Railroads—Clearance; Railroads—Construction; Railroads—Curves and turnouts; Railroads—Maintenance and repair; Railroads—Switches; Rails; Spikes (railroad); Street railroads—Track

Track depression

Track depression project at Minneapolis. C. N. Bainbridge. il diags Ry Age 59:1059-63 D 3 '15

Track elevation

Chicago track-elevation bridges of Illinois Central R. R. diags Eng N 75:600-3 Mr 30 '16

Equipment of concentrating trains. il diags Eng N 74:1275-6 D 30 '15

Flat slab used at Lackawanna South Orange crossing. il diags plan Eng N 75:526-9 Mr 16 '16

Grade crossing elimination in Camden, N. J. il map Ry Age 61:69-72 Jl 14 '16

Lackawanna improvements at South Orange. A. B. Cohen. il diag plan Ry Age 60:683-7 Mr 24 '16

Plate girders of record weight in Worcester viaduct. F. B. Freeman. il diags Eng N 75:1065-9 Je 8 '16

Railway improvements on the Chicago & Northwestern Ry. at Clinton, Iowa. diag plan Eng N 76:102 Jl 20 '16

St. Paul is doing intricate track-elevation work in Chicago with company forces. il map Eng Rec 74:75-7 Jl 15 '16

Track elevation and station at Fort Wayne, Ind. il diags plan Eng N 75:492-5 Mr 16 '16

Track elevation on Chicago & Western Indiana. il map Ry Age 60:427-30 Mr 10 '16

Track elevation project on the Evanston branch of the C. M. & St. P. il diags map Ry Age 60:755-9 Mr 31 '16

Wabash grade elimination in Fort Wayne. il Eng N 76:241-2 Ag 10 '16

See also Elevated railroads

Track inspection

Forty-fourth annual track inspection of the Pennsylvania. il Ry Age 61:639-41 O 13 '16

Traffic

Railway traffic of the Chicago terminal. Ry Age 60:49-51 Ja 14 '16

See also Railroads—Passenger traffic

Train load

Increasing efficiency as indicated by larger train loads. Ry Age 59:1041-2 D 3 '15

Road trials to determine tonnage rating. E. S. Barnum. Ry Age 59:1095-6 D 10 '15

See also Freight car service—Car load

Railroads—Continued**Train sheds**

- Canopies at Denver station are of precast units. *il Eng Rec 74:447-8 O 7 '16*
- Design and construction of the unit-built reinforced concrete train sheds of the Denver Union station. A. M. Wolf. *il diags Eng & Contr 46:358-60 O 25 '16*
- Details of an effective type of island canopy and shelter. *diag Eng & Contr 45:408 My 3 '16*
- Plan for Lehigh Valley station at Buffalo places train shed columns between tracks. *diags Eng Rec 73:256-8 F 19 '16*
- Platform shelters of concrete unit construction. *il diag Eng N 76:73 JI 13 '16*
- Reinforced concrete train shed of unit construction. *il diags Ry Age 60:155-8 Ja 28 '16*
- Train-shed with columns between the tracks. *diags Eng N 76:390-1 Ag 31 '16*

Trains

- Cause of shocks in long freight trains. H. C. Priebe. *Ry Mech Eng 90:21-2 Ja '16*
- Graphic train sheets. F. W. Rizer. *il Ry Age 60:1549-50 Je 23 '16*
- Lately revised standard code. H. W. Forman. *Ry Age 60:65-7, 291-3, 745-7, 999-1001, 1319-20 Ja 14, F 18, Mr 31, My 5, Je 16 '16*
- Long freight trains and railway accidents. *Ry Age 60:1033-8 My 12 '16*
- Recommended practice in the makeup and handling of modern freight trains, on both level and steep grades, to prevent damage to draft gear; committee report with discussion. *Ry R 59:626-9 N 4 '16; Same cond. Ry Age 61:798-9 N 3 '16*
- Train handling on heavy grades. E. F. McKenzie. *Ry Age 61:510-11 S 22 '16*
- Vital relation of train control to the value of steam and electric railway properties. W. V. Turner. *diags J Fr Inst 182:419-62, 613-57 O-N '16*
- War wearing out imperial trains. W. S. Hiatt. *Ry Age 61:119 JI 21 '16; Same. Sci Am S 82:185 S 16 '16*
- Western Pacific train rules. *Ry Age 61:236-7 Ag 11 '16*
- See also* Railroads—Train load; Train dispatching; Train resistance

Trespassing

- Protecting the right of way from encroachments. W. F. Rench. *Ry Age 59:1142-3 D 17 '15*
- State's responsibility for loss of life. L. F. Loree. *Ry Age 60:794 Ap 7 '16*

Valuation

- Absurdities of the straight line method of determining depreciation. J. B. Jenkins. *Ry Age 60:357-8 F 25 '16*
- As the government interprets railroad depreciation. *Eng Rec 73:794-5 Je 17 '16*
- California commission admits that market value will not reproduce land. *Eng Rec 73:76 Ja 15 '16*
- Carrier's brief on federal valuation of the railroads. *Ry R 58:167-9 Ja 29 '16*
- Chicago & Northwestern Ry. valuation methods. *Eng N 74:1160-2 D 16 '15*
- Chicago zone valuation committee. *Ry Age 61:325-6 Ag 25 '16*
- Circular with reference to valuation of abandoned property. *Ry R 59:217-18 Ag 12 '16; Same cond. Ry Age 61:326 Ag 25 '16*
- Circulars on valuation, issued by the President's conference committee on federal valuation of railroads in the United States. *Ry R 57:815-17 D 25 '15*
- Comments on the government's first tentative valuations. *Eng Rec 74:579 N 11 '16*
- Commission on valuation for rate-making purpose. C. C. James. *Ry Age 60:167-8 Ja 28 '16*
- Depreciation as supplied to valuation. R. B. Shepard, jr. *Eng Rec 74:202 Ag 12 '16*
- Developments in federal valuation of the railroads. *Ry R 58:391-3 Mr 18 '16*
- Developments in federal valuation of railroads. T. W. Hulme. *Ry R 58:822-3; 59:272-7, 334-5 Je 10, Ag 26, S 9 '16*
- Developments in valuation. *Ry R 59:701-3 N 18 '16*

- Elements of utility valuation. G. Weston. *Elec Ry J 47:265-7 F 5 '16*
- Employees and federal valuation. *Ry Age 61:411-12 S 8 '16*
- Engineering for reproduction estimated in detail. *Eng Rec 73:419-20 Mr 25 '16*
- Examples of federal valuation of railroads. F. L. Nicholson. *Ry R 59:385-90 S 16 '16*
- Facts about federal valuation of railroads. T. H. Hulme. *Ry R 58:215-17 F 5 '16*
- Federal valuation of the Boston and Maine railroad. F. C. Shepherd. *Boston Soc C E J 2:291-326 O '15; Same abr. Eng Rec 72:538-41 O 30 '15; Same abr. Ry R 57:665-7 N 20 '15; Discussion. Boston Soc C E J 3:71-6 F '16*
- First complete railway-valuation reports filed. *Eng N 76:892-3 N 9 '16*
- First tentative valuation reports. *Ry Age 61:195-6 Ag 4 '16*
- First tentative valuation reports issued. *Ry Age 61:757-8 O 27 '16*
- Function of federal valuation in rate making. C. C. James. *diag Ry R 58:671-2 My 13 '16*
- Government has now inventoried 41,607 miles of railroads. *Eng Rec 73:85 Ja 15 '16*
- How should abandoned property be valued? R. B. Shepard, jr. *Eng Rec 74:499-500 O 21 '16*
- How the government handles its roadway parties in the valuation work. C. W. Stark. *Eng Rec 74:105-6 JI 22 '16*
- Important principles involved in valuation. P. Butler. *Ry Age 60:477-81 Mr 17 '16*
- Instructions to pilot engineers on federal valuation. F. T. Howes. *Eng Rec 74:239 Ag 19 '16*
- Interstate commerce commission makes its first two tentative valuation reports. *Eng Rec 74:598-9 N 11 '16*
- Minnesota commission offers novel valuation views. *Eng Rec 73:12 Ja 1 '16*
- Much work for railroad-valuation engineer precedes advent of government forces. C. W. Stark. *Eng Rec 74:252-3 Ag 26 '16*
- No attempt yet to fix prices in federal valuation. *Eng Rec 73:42 Ja 8 '16*
- Original cost to date, cost of reproduction new, and cost of reproduction less depreciation. J. S. Tassin. *Ry Age 59:1183 D 24 '15*
- Principles of railway valuation. N. T. Guernsey. *Elec Ry J 47:249-52 F 5 '16*
- Progress of federal railway-valuation work. *Eng N 74:1241 D 23 '15*
- Prospective development and earnings affect the value of a railroad. R. B. Shepard, jr. *Eng Rec 73:704-6 My 27 '16*
- Prospective development and the value of a railroad. R. B. Shepard, jr. *Eng Rec 73:808-9 Je 17 '16*
- Railroads' side of valuation, as handled on Jersey Central. C. W. Stark. *diag Eng Rec 74:168-70 Ag 5 '16*
- Railway real estate association 2d annual meeting. *Ry Age 61:701-3 O 20 '16*
- Reproduction cost allocated between freight and passenger service. table *Eng Rec 73:386-9 Mr 18 '16*
- 64,793 miles of railroad now covered by government. *Eng Rec 73:837 Je 24 '16*
- Smaller carriers and the federal valuation. D. V. Moore. *Ry Age 60:759-60 Mr 31 '16*
- State commissions present their views on federal valuation of railroads. *Eng Rec 73:194-5 F 5 '16*
- Valuation bug. *Ry R 58:534-5 Ap 15 '16*
- Valuation of aids, gifts, grants and donations. *Ry R 58:297-9 F 26 '16*
- Valuation of Rock Island terminal zone in Chicago presents many special problems. C. W. Stark. *Eng Rec 74:410-12 S 30 '16*
- What constitutes utility value? P. J. Kealy. *Elec Ry J 47:267-8 F 5 '16*
- What the government valuation division is doing and how the work is handled. C. W. Stark. *Eng Rec 74:43-5 JI 8 '16*
- See also* Electric railroads—Valuation

Bibliography

- List of references on valuation of railways. Bureau of railway economics, Washington, D. C. 127p Ag 1 '16 (Typew)

Water supply

- Comparative water service costs. P. M. La Bach. *Ry Age 61:368 S 1 '16*

Railroads—Water supply—Continued

- Dawson balanced-valve water crane. diag Ry R 58:26 Ja 1 '16
 History of a water station. C. R. Knowles. Ry Age 61:606 O 6 '16
 Intakes and intake lines in railway water service. il diags Ry R 59:689-93 N 18 '16
 New style railway water tanks. diags Ry R 58:408-9 Mr 18 '16
 Prevention of water waste on railroads. C. R. Knowles. il Am Water Works Assn J 3:469-81 Je '16; Same cond. Ry R 57:718-20 D 4 '15; Excerpts. Eng Rec 73:805-6 Je 17 '16
 Sanitary water cooler with isolated ice chamber. C. W. Duncan. il Elec Ry J 47:616 Mr 25 '16
 Treatment of feed water for locomotive boilers. L. F. Wilson. Ry R 58:794-6 Je 3 '16
 Water treatment on the Missouri Pacific. il Ry Age 60:1593-4 Je 30 '16
See also Water coolers; Water tanks

Yards

- Car stop of novel design for use in yard tracks. diag Coal Age 8:1015 D 18 '15; Same. Eng N 74:1129 D 9 '15
 Flood lighting of railroad yards. il Elec R & W Elec'n 69:944 N 25 '16
 Freight yard at Birmingham, Alabama. il plan Eng N 74:1126-8 D 9 '15
 Illumination of railroad yards. diags Ry R 59:722-4 N 25 '16; Abstract with discussion. Ry Age 61:841 N 10 '16
 Locomotive repair shops and classification yard, Lehigh & New England R. R., Pen Argyl, Pa. il plan Ry R 58:809-11 Je 10 '16
 Material yards on railroad construction work. R. L. Morrison. Eng & Contr 46:335-7 O 18 '16
 Passenger car terminal yard. W. W. Warner. Ry Mech Eng 90:402 Ag '16
 Railway improvements on the Chicago & Northwestern Ry. at Clinton, Iowa. diag plan Eng N 76:102 Jl 20 '16
 Tentative designs for terminal facilities in the electrification of Chicago railways. diags map Ry R 58:96-101 Ja 15 '16
 Yard maintenance. C. L. Van Auken. Ry Age 60:323-4 F 18 '16
 Yard operation. J. R. Hamilton. Ry R 58:366-7 Mr 11 '16
See also Railroads—Switching

Alaska

- Difficulties of railroad maintenance in Alaska. K. McFarlin. il Sci Am 114:523+ My 20 '16
 Government railroad in Alaska—what two years and limited funds have accomplished. T. Riggs, jr. il map Eng Rec 73:600-3 My 6 '16
 Transportation in Alaska. W. R. Crane. Eng & Min J 101:347-8 F 19 '16

Asia

See Bagdad railway

Australia

- How Australia builds its railroads. M. E. Ker-nott. Eng Rec 72:694-6 D 4 '15

Belgium

- History of the railway lines of Belgium. E. J. Hubaux. map Ry Age 60:482-4 Mr 17 '16

Brazil

- Brazilian opportunities and the Brazil railway. F. E. Lawrence. il map Eng N 75:345-50 F 24 '16
 Cable inclines on the Sao Paulo Ry. in Brazil. F. A. Molitor. il diag map Eng N 76:976-7 N 23 '16
 Contract for Brazilian railway building. Ry R 59:219 Ag 12 '16

Canada

- Canadian railways in the eventful year 1915. J. L. Payne. Ry Age 60:995-6 My 5 '16
 Construction of the Hudson Bay Ry. il map Ry R 58:235-8 F 12 '16

- State and private railway deficits in Canada. Ry Age 61:94 Jl 21 '16

See also Railroads and state—Canada

China

- Development of government railways in China. C. C. Wang. Eng N 76:540-1 S 21 '16
 Men cheaper than machines on trunk-line railway construction in China. E. Park. il map Eng Rec 74:525-6 O 28 '16
 Progress of Chinese railways. U. K. W. Koo. Eng N 75:553 Mr 23 '16
 Progress of work on the Hukuang railways. Ry R 57:836 D 25 '15

France

- Frenchman blames official dry-rot for freight congestion. W. S. Hiatt. Ry Age 60:243-4 F 11 '16
 War's effects on Europe's railways. W. S. Hiatt. il Ry Age 60:362-3 F 25 '16

Germany

- German military railroad organizations at work. il Sci Am 114:302-3 Mr 18 '16
 German railways and safety. W. B. Parsons. Ry Age 60:1574 Je 30 '16
 Relative efficiency of German and American railways. R. Emerson. Ry Age 61:53-4 Jl 14 '16
 Where German efficiency falls down. H. W. Faus. Ry Age 60:1329-32; 61:226 Je 16, Ag 11 '16

Great Britain

- British railway wages in 1913. Ry Age 61:294 Ag 18 '16
 British railways. Engineer 122:297-9 O 6 '16
 Eight-wheels coupled engines on British railways. E. L. Ahrons. Engineer 120:449-50 N 12 '15
 Employment of women in Great Britain. Am Soc M E J 38:1044-5 D '16
 Great Western runs to Birmingham. Engineer 121:506-7 Je 16 '16
 Liverpool's overhead and underground railways. diag Engineer 120:552 D 10 '15
 Locomotive performance on the London and North-Western railway. Engineer 122:343-4 O 20 '16
 Manchester to Bury electrification. il diags map plans Engineer 121:34-6, 38 Ja 14 '16
 New suburban electrification in England; Lancashire and Yorkshire railway. il diag Elec Ry J 47:434-42 Mr 4 '16
 Railway congestion. Engineer 121:229 Mr 17 '16
 Railways, trade and state ownership. C. G. Howsin. Engineer 122:331-2 O 13 '16
 War payments to the British railways. J. H. Parmelee. Ry Age 61:244 Ag 11 '16
See also Railroads and state—Great Britain

Greece

- Greek railway program offers American opportunity. A. W. Weddell. Ry R 57:823 D 25 '15

India

- British India's railroad development. J. K. Goodrich. Iron Age 97:486-7 F 24 '16
 Indian railways. Engineer 120:479-80, 527-8 N 19, D 3 '15
 Superheaters and oil fuel for Indian locomotives. H. R. Wilson. Ry R 58:63-4 Ja 8 '16

Italy

- Roads that lead to the Italian front. Ry Age 61:320-2 Ag 25 '16

Mexico

- Conditions on the railways of Mexico. Ry R 58:90-2 Ja 15 '16
 Keeping open a Mexican railway. il Eng N 75:576 Mr 23 '16
 Railroad conditions in Mexico. Ry Age 59:1096-7 D 10 '15
 Railway traveling in Mexico. M. S. Watson. Eng & Min J 101:340-2 F 19 '16

New South Wales

- New South Wales government railways. Ry Age 59:1182 D 24 '15

New York (state)

See New York Connecting railroad

Railroads—Continued**Panama**

Construction of the Chiriqui railway. A. S. Zinn. il map Ry Age 61:847-50 N 10 '16

Philippine Islands

Estimated and actual cost of Baguio railway. F. Lavis; W. M. Butts. Eng Rec 74:539-49 O 28 '16

Handling of Filipino labor one of problems in construction of Baguio railroad. W. M. Butts. il Eng Rec 74:351-2 S 16 '16

See also Railroads and state—Philippine Islands

Russia

Freight equipment cars for the Russian government. il Ry R 57:720-1 D 4 '15

Railway construction to Russia's northern ports. map Ry R 58:181-2 Ja 29 '16

Russian standards of track construction. il diags Ry Age 60:320 F 18 '16

South America

South American railway instruction car. il Engineer 120:526-7 D 3 '15

Switzerland

Progress on the St. Gothard electrification. map Elec Ry J 48:225-7 Ag 5 '16

Swiss railways dynamometer car. H. A. Gaudy. il diags Ry Age (Mech ed) 89:606-12 D '15

Swiss state railways electrification. J. Grande. Engineer 122:104-5 Ag 4 '16

Texas

Why Texas railroads are in receivers' hands. C. E. Schaft; W. B. Scott. Ry Age 59:1053-4 D 3 '15

United States

American railway association fall meeting. New York city, Nov. 15. Ry Age 61:906-10 N 17 '16; Ry R 59:700-1 N 18 '16

American railway association's co-operation with the military authorities; report. Ry R 59:138-40 J1 29 '16

Basis of our present prosperity; railroad purchases. E. B. Leigh. Ry Age 61:758-9 O 27 '16

Construction and improvements planned for 1916. Ry R 58:71-4, 108-9 Ja 8-15 '16

Construction work in 1915. Ry R 58:23-6, 109-10 Ja 1, 15 '16

Co-operation of railroads in movement of troops. Ry R 59:21-2 J1 1 '16

Early days of the railroad. H. Elliott. Sci Am S 81:139 F 26 '16

Federal immigration service and the railroads. W. L. Stoddard. Ry Age 60:29 Ja 7 '16

Government and American railroad needs. O. H. Kahn. Ry Age 60:199-201 F 4 '16; Abstract. Ry R 58:177-8 Ja 29 '16

Malady of the railroads of the United States. H. Elliott. Ry Age 60:237-40 F 11 '16

Material and labor market conditions. Ry Age 60:493-7 Mr 17 '16

1915 from the contractor's standpoint. W. A. Rogers. Ry Age 59:1236 D 31 '15

Opportunity and responsibility of the railroad man. F. A. Vanderlip. Ry Age 61:836-9 N 10 '16

Our railroads and national defense. C. O. Haines. Ry Age 60:55-6 Ja 14 '16

Present railway situation in the United States. Ry Age 60:191-3 F 4 '16

Railroads and the national guard. Ry Age 60:1597-8 Je 30 '16

Railway construction in the Northwest. map Ry R 58:599-600 Ap 29 '16

Railway construction in the United States and Canada—1915. Ry R 58:65-70, 101 Ja 8-15 '16

Railway construction statistics for 1915. Ry Age 59:1247-51 D 31 '15

Railway preparedness for national defense. H. W. Jacobs. Ry R 59:37-8 J1 8 '16

Railway situation in the Southwest. W. B. Scott. Ry Age 59:1231-2 D 31 '15

Railway situation in United States as viewed by a British authority. W. M. Acworth. Ry Age 61:101-2 J1 21 '16; Excerpts. Ry R 59:93-4 J1 15 '16

Railways and the national guard. Ry Age 61:35-6 J1 7 '16

Record of ten years. Ry R 58:326-7 Mr 4 '16

Relation of railroads to foreign trade. F. Harrison. Ry Age 60:283-6 F 18 '16

Report of A. R. A. committee on mobilization. Ry Age 61:150-1 J1 28 '16

Requirements of our railways in a system of national defense. C. H. Markham. Ry Age 59:1229-31 D 31 '15

Resolutions summarizing the present railway situation. Ry R 58:212-14 F 5 '16

Review of the year, 1915. Ry R 58:16-20 Ja 1 '16

Uncertainty—the railroad disease. I. L. Lee. Ry R 58:180-1 Ja 29 '16

See also Interstate commerce commission;

Railroads—Statistics; Railroads and state—

United States; also names of railroads, e.g.

Great Northern railway

Washington

30-mile railway tunnel under the Cascade mountains. H. M. Chittenden. il maps Eng N 76:928-35 N 16 '16

Railroads, Electric. See Electric railroads

Railroads, Elevated. See Elevated railroads

Railroads, Industrial

Centrally controlled electric haulage systems. F. E. Woodford. il Eng Soc W Pa 31:584-97 O '15; Same cond. Sci Am S 82:40-2 J1 15 '16; Discussion. Eng Soc W Pa 31:598-608 O '15

Commission rulings on industrial railways. Ry Age 60:221 F 4 '16

Construction of the Bingham & Garfield Ry. H. C. Goodrich. il maps Ry R 59:232-8 Ag 19 '16

Cost of maintaining private sidings. Ry Age 60:207-8 F 4 '16

Cost of station spur tracks. Power 43:662 My 9 '16; Same. Coal Age 9:999 Je 10 '16

Decisions in the second industrial railways case. Ry R 58:182-3 Ja 29 '16

Handling materials in manufacturing plants. R. L. Streeter. il Eng M 51:100-5 Ap '16

Metallurgical works tramways. W. C. Capron and C. R. Kuzell. il diags Eng & Min J 102:613-20 O 7 '16

Railway in brick highway construction. il Munic Eng 50:98 Mr '16

Track built on top of pipe to remove muck from tunnel. A. C. Francis. il Eng Rec 74:662 N 25 '16

See also Locomotives, Industrial; Railroads,

Portable

Railroads, Interurban. See Interurban railroads

Railroads, Mountain. See Mountain railroads

Railroads, Municipal

St. Louis municipal railway and water front. map Eng N 75:62 Ja 13 '16

Railroads, Portable

Hauling materials by portable railway Toronto to Hamilton highway, Ontario. H. S. Van Scoyoc. Eng & Contr 45:185-6 F 23 '16

How a contractor handles state highway work. D. G. Bevis. Munic Eng 50:167-8 Ap '16

Railroads, Street. See Street railroads

Railroads, Underground. See Subways

Railroads and state

Address. G. A. Post. Ry Age 61:754-7 O 27 '16

Extravagance of government ownership. J. W. Weeks. Ry R 58:202-3 F 5 '16

Letter on government ownership of railroads. F. Trumbull. Ry Age 60:1325-6 Je 16 '16

Problems and principles of government regulation of railroads. E. R. Johnson. Ry Age 60:27-9 Ja 7 '16; Same cond. Ry R 58:178-80 Ja 29 '16

Reform and regulation. A. C. Humphreys. Boston Soc C E J 3:281-9, 294-7 Je '16

See also Government ownership; Govern-

ment regulation of industry; Public utilities—

Regulation; Public utilities commissions; Railroad

commissions; Railroad law; Railroads—Rates; Railroads—Valuation; Rail-

roads—Germany; Union Pacific railroad

Canada

Failure of government ownership in Canada. S. O. Dunn. Ry Age 61:55-9, 103-6 J1 14-21 '16; Abstract. Eng Rec 74:127 J1 29 '16

Railroads and state—Canada—Continued

- Is government ownership in Canada a failure?
J. L. Payne. Ry Age 61:589-91 O 6 '16
Railway regulation in Canada. B. Lee. Ry R
58:248-9 F 12 '16
Why the Intercolonial railway is a failure.
S. O. Dunn. Ry Age 61:629-32 O 13 '16

Great Britain

- Future of British railways. Engineer 121:401-2
My 12 '16
Railway and canal traffic act, 1913. Engineer
121:200-1 Mr 3 '16
Railways and the government. Engineer 122:
249 S 22 '16

Philippine Islands

- Acquisition of the Manila railroad by the gov-
ernment. Ry Age 61:413 S 8 '16

United States

- Are receivers' functions political or judicial?
W. V. Rooker. Ry Age 60:235-6 F 11 '16
Campaign by Philadelphia commercial organi-
zations for reform in railroad regulation. Ry
R 59:141-2 J1 29 '16
Chamber of commerce of the United States on
revision of regulation of railways. Ry R 59:
729-32 N 25 '16
Commission regulation. L. B. Franklin. Ry
Age 61:644 O 13 '16
Commission to study the railroad situation.
W. L. Stoddard. Ry Age 60:106 Ja 21 '16
Conflict between state and federal regulation.
W. D. Hines. Ry Age 60:401-3 Mr 3 '16
Conflicting railroad regulation. C. J. Graham.
Ry Age 60:348 Ap 28 '16
Congress and the railways. Ry Age 61:507-8 S
22 '16; Same. Ry R 59:420-1 S 23 '16; Same
cond. Am Ind 17:11-12 O '16
Congressional inquiry into railway regulation;
proceedings of Newlands joint committee. Ry
R 59:115-17 N 25 '16; Ry Age 61:950-3 N 24
'16
Congressional inquiry on railroad regulation;
opening statement presented by Alfred P.
Thom; with comment. Ry Age 61:978-9, 984-
8 D 1 '16
Congressional investigation of railway regula-
tion. Ry Age 61:704-5, 734-5 O 20, N 3 '16
Defects in railway regulation. Ry Age 60:839-40
Ap 14 '16; Same. Ry R 58:579-80 Ap 22 '16
English view of American regulation. W. M.
Acworth. Ry Age 59:1203 D 24 '15
Federal regulation. F. Trumbull. Ry Age 60:
747-8 Mr 31 '16
Federal regulation, including the labor prob-
lem. D. Willard. Ry R 58:675 My 13 '16
Forthcoming railway inquiry. F. G. Newlands.
Ry R 59:669-71 N 11 '16
Government and American railroad needs.
O. H. Kahn. Ry Age 60:199-201 F 4 '16; Ab-
stract. Ry R 58:177-8 Ja 29 '16
Government regulation and our transportation
systems. O. W. Underwood. Gen Elec R 19:
195-8 Mr '16; Same cond. Elec Ry J 47:247-8
F 5 '16; Same cond. Ry Age 60:248-50 F 11
'16; Same cond. Ry R 58:209-11 F 5 '16
Investigation of government regulation. Ry
Age 61:2, 93 J1 7, 21 '16
Labor department and the railroads. W. L.
Stoddard. Ry Age 59:1132-3 D 17 '15
National association of railway commissioners
convention. Ry Age 61:897-902, 944-6 N 17-
24 '16
National chamber of commerce discusses rail-
road situation. Ry Age 61:941-3 N 24 '16
Need for better regulation. F. Trumbull. Ry
Age 61:895-6 N 17 '16
Philadelphia trade body opposes state regula-
tion. Eng Rec 73:545-6 Ap 22 '16
President's message. W. Wilson. Ry R 57:762-
3 D 11 '15
Public control of railway capitalization. J. C.
Clements. Ry Age 59:1227-8 D 31 '15
Railroad credit and the success of regulation.
A. J. County. Ry Age 61:791-3 N 3 '16
Railway commissioners meet in capital. Elec
Ry J 48:1097-1101 N 25 '16; Same cond. (Fed-
eral vs. state regulation). Elec W 68:1042-3
N 25 '16
Railway regulation causes locomotor ataxia. F.
Trumbull. Ry Age 61:113-15 J1 21 '16; Ab-
stract. Ry R 59:81 J1 15 '16
Regulation of railroad purchases. W. L. Stod-
dard. Ry Age 61:73-4 J1 14 '16

- Regulation should bring the stragglers into
line. A. Hale. Ry Age 60:1579-80 Je 30 '16
Relation between national and state railway
regulation. R. R. Prentiss. Ry Age 59:1228-9
D 31 '15
Relations of the railways and the public. L. E.
Johnson. W Soc E J 20:697-710; Discussion.
710-20 N '15
Report of house committee on Newlands reso-
lution. Ry Age 60:789 Ap 7 '16
Resolutions summarizing the present railway
situation. Ry R 58:212-14 F 5 '16
Rewards of success. G. A. Post. Ry Age 60:
1332-3 Je 16 '16
Scope of the Newlands investigation. Ry R
59:392-3 O 28 '16
Senate committee report on resolution to in-
vestigate methods of regulation. Ry Age 60:
205 F 4 '16
State regulation of interstate utilities viewed
from a new angle. A. P. Thom. Eng Rec 73:
172-3 F 5 '16
Suggested regulatory changes. Elec Ry J 47:
816 Ap 29 '16
Suggestions for the improvement of the rail-
road situation. W. J. Moroney. Ry Age 60:
96-7 Ja 21 '16
Try state ownership of railways on the Bos-
ton & Maine. Eng N 76:467 S 7 '16
Unified system of railroad regulation needed.
I. L. Lee. Ry R 58:574-5 Ap 22 '16
Views on railway regulation. G. A. Post. Ry R
59:704-5 N 18 '16
Work for a commission on regulation. Ry Age
59:1118-19 D 17 '15

See also Interstate commerce commission;
Railroads—Rates; Railroads—Valuation

Railroads in war

- British railways in war time. Ry R 58:893-4
Je 17 '16
Conquering the Alps by cable railway. Ry Age
61:364-6 S 1 '16
Control of railways in war. E. A. Pratt. Ry R
58:833-4 Je 10 '16
Electric lines along shore useful in moving
troops and supplies. W. A. Bancroft. Elec
Ry J 46:1125 D 4 '15
Electric railways in military service. J. B.
Bellinger. Elec Ry J 48:18-20 J1 1 '16
Europe struggling with a ship and car short-
age. W. S. Hiatt. Il Ry Age 60:102-4 Ja 21 '16
Friendship corners of French railway stations.
W. S. Hiatt. Il Ry Age 61:59-60 J1 14 '16
German military railroad organizations at
work. Il Sci Am 114:302-3 Mr 18 '16
Liability of military railroads. W. S. Hiatt.
Ry Age 60:396 Mr 3 '16
Our railroads and national defense. C. O.
Haines. Ry Age 60:55-6 Ja 14 '16
Preparedness and our railroads. G. D. Dixon.
Ry R 57:751-4 D 11 '15; Same. Ry Age 59:
1084-6 D 10 '15; Excerpts. Am Ind 16:16 Ja
'16; Same cond. (Adequate railway systems).
Eng Rec 72:737-8 D 11 '15
Railroad supply cities feeding the firing line.
W. S. Hiatt. Il diag Ry Age 60:237-9 F 18
'16; Same. Sci Am 82:68-9 J1 29 '16
Railroads and national defense. Ry R 58:107-8
Ja 15 '16
Railway co-operation in national defense. Ry
R 58:184 Ja 29 '16
Railway military preparedness. C. B. Baker.
Elec Ry J 47:348-50 F 19 '16
Railways and national defense. Sci Am 115:
236 S 9 '16
Railways in a system of national defense.
W. L. Park. Ry Age 60:1131-4 My 26 '16; Ex-
cerpt. Ry R 58:790-1 Je 3 '16
Relation of railway personnel to military de-
fense. G. D. Snyder. Ry Age 61:404 S 8 '16
Requirements of our railways in a system of
national defense. C. H. Markham. Ry Age
59:1229-31 D 31 '15
Roads that lead to the Italian front. Ry Age
61:320-2 Ag 25 '16
War's effects on Europe's railways. W. S.
Hiatt. Il Ry Age 60:362-3 F 25 '16

See also Hospital trains; Railroads—
France; United States—Militia—Mobiliza-
tion, 1916

Rails

- Are old rails worth conserving? J. Reinehr.
Ry R 59:75-6 J1 15 '16
Cold straightening of rails. C. W. Gennet, jr.
Ry Age 60:4 Ja 7 '16

Rails —Continued

- Difficulties of rail manufacture. J. S. Unger. *il Iron Tr R* 58:1313-16 *Je* 15 '16; Same. *Ry R* 59:72-4 *Jl* 15 '16
- Effects of blooming on rails. M. H. Wickhorst. *Iron Age* 96:1317 *D* 2 '15
- Experimental researches on the skin effect in steel rails. A. E. Kennelly, F. H. Achard and A. S. Dana. *biblog il diags J Fr Inst* 182:135-89 *Ag* '16
- Find old steel-capped iron rails at Joliet works of Illinois steel company. *il diag Iron Tr R* 59:130 *Jl* 20 '16
- Gage measures rail wear on sharp curves. J. T. Bowser. *diags Eng Rec* 74:555 *N* 4 '16
- Girder rails replaced by T-rails in Cambridge, Mass. *il Elec Ry J* 48:942 *O* 28 '16
- Grooved girder rails. *diags Eng N* 76:418-19 *Ag* 31 '16
- Heavy rails for the Lehigh Valley R. R. *diag Ry R* 58:127 *Ja* 22 '16; *Eng Rec* 73:221 *F* 12 '16; *Eng N* 75:598-9 *Mr* 30 '16
- Making sound steel commercially. E. F. Kenney. *il diags Iron Tr R* 57:349-55+, 397-400 *Ag* 19-26 '15; Same (pt 2). *Iron Age* 95:1343-6 *Je* 17 '15; Excerpts. *Ry Age* 60:251-3 *F* 11 '16; Discussion. H. M. Howe. *Iron Tr R* 57:400+ *Ag* 26 '15
- Novel rail section in use on the Minneapolis, St. Paul & Sault Ste. Marie. *il diag Ry Age* 60:130 *Ja* 21 '16
- 130-lb. rail section. *diag Ry Age* 60:1100 *My* 19 '16
- Principles governing the allotment of new rail. *Ry Age* 60:309-10 *F* 18 '16
- Problems in rails and special work. *Elec Ry J* 47:4 *Ja* 1 '16
- Production of rails in the United States in 1915. *Ry Age* 60:910 *Ap* 21 '16
- Rail exports and imports in 1915. *Iron Age* 97:595 *Mr* 9 '16
- Rail manufacture. H. C. Ryding. *Iron Age* 97:1322-3 *Je* 1 '16
- Rail manufacture. J. S. Unger. *Ry Age* 60:1174-5 *Je* 2 '16
- Rail profile machine. *il Ry Age* 59:1192 *D* 24 '15
- Rail weights reduced to lengths, and vice versa. J. G. Wishart. *tables Eng Rec* 73:666-7 *My* 20 '16
- Segregated streaks in steel rails. G. F. Comstock. *il Iron Tr R* 59:941-6 *N* 9 '16; Same cond. *Ry R* 59:732-4 *N* 25 '16
- Steel conductor rails; British steel conductor rail practice and standard methods of testing; abstracts. C. H. Ridsale. *diags Elec W* 68:187-8 *Jl* 22 '16; *Iron Age* 98:650-1 *S* 21 '16
- Steel rails in Germany. *Ry Age* 61:558 *S* 29 '16
- Titanium-treated Mayari rails. *il Elec Ry J* 47:179 *Ja* 22 '16
- Titanium-treated rails in Boston. *il Elec Ry J* 47:47-8 *Ja* 1 '16
- Use of manganese steel in plain curves. M. Bernard. *diags Elec Ry J* 47:410 *F* 26 '16
- What is the rail head? C. W. Gennet, jr. *Elec Ry J* 46:1127 *D* 4 '15

See also Rail bonds; Rail joints; Railroads —Track; Third rails

Corrugation

- Causes of rail corrugation. M. D. Pratt. *Eng N* 76:217 *Ag* 3 '16
- Causes of rail corrugation; discussion. *Elec Ry J* 47:87, 126, 216, 319-20 *Ja* 8-15, 29, *F* 12 '16
- Collection of corrugation data urged. H. S. Cooper. *Elec Ry J* 47:407 *F* 26 '16
- Curved heads for girder rails. C. F. Gailor. *diag Elec Ry J* 47:126-7 *Ja* 15 '16
- Curved heads for girder rails in Brooklyn. R. C. Cram. *il diags Elec Ry J* 46:1246-51 *D* 25 '15
- Data for determining cause of rail corrugation. H. S. Cooper. *Elec Ry J* 48:726-7 *O* 7 '16
- Foundation resilience and rail corrugation. T. N. Jones, jr. *map Elec Ry J* 48:67-8 *Jl* 8 '16
- High-carbon steel and rail corrugation. W. R. Dunham, jr. *Elec Ry J* 47:216-18 *Ja* 29 '16
- Rail corrugation studied in Chicago. *il diags Elec Ry J* 48:1012-16 *N* 11 '16
- Rail wear and corrugation. R. B. Holt. *il Elec Ry J* 48:456-7 *S* 9 '16

- Steel wheels and rail corrugation. W. G. Gove. *Elec Ry J* 47:319 *F* 12 '16
- Study of a corrugated rail. H. M. Sayers. *Elec Ry J* 47:786-8 *Ap* 22 '16
- Vibration theory of rail corrugation; abstract. A. Meyer. *Elec Ry J* 47:618-19 *Mr* 25 '16

Failures

- Causes of rail failures. W. C. Cushing. *Ry Age* 60:1031-2 *My* 12 '16
- Frequent cause of broken rails. *il diag Sci Am* 115:194+ *Ag* 26 '16
- Initial strains in steel rails. J. E. Howard. *Ry Age* 61:328-30 *Ag* 25 '16; Same abr. *Ry R* 59:256-7 *Ag* 19 '16; Summary. *Iron Age* 98:654 *S* 21 '16; Summary. *Am Soc M E J* 38:938 *N* '16
- Mill practice and rail failures. *Iron Tr R* 58:706-8 *Mr* 30 '16
- 1914 rail failure statistics. *Ry Age* 59:1097 *D* 10 '15
- Rail failure statistics for 1915; abstracts. M. H. Wickhorst. *Ry R* 59:580 *O* 28 '16; *Iron Tr R* 59:732-3 *O* 12 '16; *Ry Age* 61:632 *O* 13 '16
- Rail failures and temperature. *Ry Age* 61:605-6 *O* 6 '16
- Rail failures ascribed to poor quality of steel. W. C. Cushing. *Eng Rec* 73:475 *Ap* 8 '16
- Transverse fissures. *Ry Age* 60:387-8 *Mr* 3 '16
- Transverse fissures are a big problem. A. W. Heinle. *Iron Tr R* 59:729 *O* 12 '16
- Transverse fissures in steel rails; causes and means of prevention. P. H. Dudley. *il diags Ry R* 59:238-41 *Ag* 19 '16; Same cond. *Iron Age* 98:339-42 *Ag* 17 '16; Same cond. *Iron Tr R* 59:331-2 *Ag* 17 '16; Excerpts. *Eng Rec* 74:268 *Ag* 26 '16; Abstract. *Ry Age* 61:287-8 *Ag* 18 '16

Joints

See Rail joints

Specifications

- Diversity of rail specifications. *Ry Age* 61:95 *Jl* 21 '16
- Foreign specifications for railway material; rails, wheels, axles, tires. G. K. Burgess and P. D. Merica. *diags U S Bur Stand Tech Pa* 61:1-132 '16
- Segregation and sponginess in ladle test ingots; abstracts. R. W. Hunt & co. *Ry Age* 59:1196-7 *D* 24 '15; *Am Soc M E J* 38:88-9 *Ja* '16

Stresses

- Initial strains in rails. J. E. Howard. *Ry Age* 61:328-30 *Ag* 25 '16
- Investigation of initial strains in steel rails. J. E. Howard. *diags Ry R* 58:503-10 *Ap* 8 '16

Testing

- Correlation of the magnetic and mechanical properties of steel. C. W. Burrows. *il Ry R* 58:568-71 *Ap* 22 '16
- Influence on rails of the method of blooming. *Ry Age* 59:1187 *D* 24 '15
- Magnetic tests of soundness of rails. C. W. Burrows. *Iron Age* 97:795-6 *Mr* 30 '16
- Nick and break steel rail test. R. W. Hunt and C. W. Gennet, jr. *il diags Iron Tr R* 58:709-18 *Mr* 30 '16; Same cond. *Iron Age* 97:722-5 *Mr* 23 '16; Same cond. *Ry R* 58:452-6 *Mr* 25 '16; Abstract. *Eng N* 75:701-2 *Ap* 13 '16; Discussion. B. Stoughton. *Iron Tr R* 58:718-19 *Mr* 30 '16; Same. *Iron Age* 97:726 *Mr* 23 '16
- Railroad engineers discuss rail tests. *Iron Tr R* 58:719 *Mr* 30 '16
- Rails, Guard. See Guard rails
- Railway accounting officers. See Association of American railway accounting officers
- Railway bridge and building association, American. See American railway bridge and building association
- Railway business association
Annual meeting. New York city, Jan. 27. *Ry Age* 60:208-9 *F* 4 '16
- Annual meeting. New York city, Jan. 27. *Ry R* 58:173-4, 212-14 *Ja* 29-F 5 '16
- Railway chairs. See Rail fasteners
- Railway claim agents, Association of. See Association of railway claim agents
- Railway commissioners, National association of. See National association of railway commissioners

- Railway electrical engineers, Association of.**
See Association of railway electrical engineers
- Railway engineering association, American.** See American railway engineering association
- Railway financial officers, Society of.** See Society of railway financial officers
- Railway fire protection association**
3d annual meeting, New York, Oct. 3-5. Ry Age 61:602-5, 642-4 O 6-13 '16
- Railway fuel association, International.** See International railway fuel association
- Railway general foremen's association, International.** See International railway general foremen's association
- Railway mail service**
Mail-pay settlement. Ry Age 61:220 Ag 11 '16
New regulations for railway mail pay. Ry Age 61:230-2 Ag 11 '16
Railway mail pay on space basis. H. F. Lane. Ry Age 61:598-601, 691-3 O 6, 20 '16
Railway mail pay rider in the postoffice appropriation bill. Ry R 58:329-30 Mr 4 '16
Senate committee hearing on railway mail pay. Ry Age 60:667-71 Mr 24 '16
See also Electric railway mail service
- Railway master mechanics' association, American.** See American railway master mechanics' association
- Railway motor cars.** See Motor cars (railroad)
- Railway motors.** See Electric motors, Railway
- Railway real estate association**
2d annual meeting, Chicago, Oct. 11-13. Ry Age 61:701-3 O 20 '16
- Railway signal association**
Report of committee on signaling practice. Elec Ry J 47:642-3 Ap 1 '16
Spring meeting, Chicago, Mar. 20. Ry R 58:438-43 Mr 25 '16
21st annual meeting, Mackinac Island, Mich., Sept. 12-14. Ry Age 61:495-7 S 22 '16
- Railway storekeepers' association**
13th annual convention, Detroit, Mich., May 15-17. Ry Age 60:1089-1100, 1136-7 My 19-26 '16; Ry R 58:708-13 My 20 '16; Ry Mech Eng 90:290-6 Je '16
- Railways.** See Railroads
- Railways, Marine.** See Marine railways
- Railways, Suspended.** See Suspended railways
- Rain, Artificial**
Artificial rain. E. Kruger. Sci Am S 81:13 Ja 1 '16
- Rain and rainfall**
California rainfall and runoff and recent floods. M. J. Bartell and R. P. McIntosh. Eng N 75:686-8 Ap 13 '16
Comparative rainfall records used in designing sewers and drains. Munic Eng 50:16 Ja '16
Croton watershed area. E. Wegmann; C. C. Vermeule. Eng N 76:664 O 5 '16
Croton watershed area is corrected. Eng Rec 74:441-2 O 7 '16; Abstract. Eng N 76:576 S 21 '16; Abstract. Munic J 41:385 S 28 '16; Excerpts. Eng & Contr 46:313 O 11 '16
Effect of seasonal rainfall on annual runoff. J. P. Wells. Eng N 76:792-3 O 26 '16
Heavy rainfall. K. Allen. Eng N 76:1001 N 23 '16
January rainfall in mountains near Los Angeles. R. A. Silent. Eng N 75:461 Mr 9 '16
Long-time New York rainfall as basis for sewer design. O. Hufeland. Eng N 76:393-7, 450-4 Ag 31-S 7 '16
Peak flood run-off figures given for southern California. Eng Rec 73:251 F 19 '16
Power estimates from stream flow and rainfall data. D. M. Wood. Boston Soc C E J 3:77-120 Mr '16; Discussion. 3:299-328 Je '16
Rainfalls of extreme amounts. Munic J 39:977-8 D 30 '15
Southern rains and floods of July, 1916, exhibited. A. J. Henry. maps Eng N 76:886-7 N 9 '16
Variation in annual rainfall. A. Hazen. map Eng N 75:4-5 Ja 6 '16
Variations in precipitation as affecting water works engineering. C. P. Birkinbine. il maps Am Water Works Assn J 3:1-62; Discussion. 62-103 Mr '16
- What makes it rain? Eng N 75:810-12 Ap 27 '16
Yield of water sheds; Hartford, Conn. records. Munic J 40:368-9 Mr 16 '16
- Rain tree.** See Saman
- Rainier, Mount.** See Mount Rainier national park
- Ramie**
Bacteriological retting for ramie, flax, etc. H. A. Carter. il Textile World 51:4831+ N 11 '16
- Rams, Hydraulic.** See Hydraulic rams
- Ramsay, William, 1852-1916**
Biographical note. H. F. Keller. J Fr Inst 182:267-70 Ag '16
Father of the new physical chemistry. por Sci Am 115:117 Ag 5 '16
Sketch. W. H. Nichols. por J Ind & Eng Chem 8:858 S '16
- Rand.** See Witwatersrand
- Rand mines.** See Gold mines and mining—Transvaal
- Raoult's law**
Solubility. J. H. Hildebrand. Am Chem Soc J 38:1452-73 Ag '16
- Rapid transit**
See also Electric railroads; Elevated railroads; Railroads; Street railroads; Subways; Trackless trolley; also subhead Rapid transit under names of cities, e.g. New York (city)—Rapid transit
- Rare earths.** See Earths, Rare
- Rat traps**
Humane rat trap. il Sci Am 115:219 S 2 '16
- Rate regulation.** See Public utilities commissions; Railroads—Rates
- Rates.** See Electric lighting—Rates; Electric power—Rates; Gas rates; Water rates
- Rates, Railroad.** See Railroads—Rates
- Rats**
How the French soldiers wage war on trench rats. il Sci Am 114:399 Ap 15 '16
How to solve the rat problem. C. B. Ball. Dom Eng 75:4 Ap 1 '16
- Rats as carriers of contagion**
Relation of rodent plague to human infection. W. C. Rucker. Sci Am S 81:199 Mr 25 '16
- Raymond, Robert Matthew**
Columbia's new professor of mining. A. S. Dwight. Eng & Min J 101:148-9 Ja 15 '16
- Reactance**
Reactance was high. E. C. Parham. Power 41:233-4 Ag 15 '16
- Reactance coils.** See Reactors
- Reaction, Chemical.** See Chemical reaction
- Reactors**
Continuity of service. J. R. Werth. il Gen Elec R 19:561-4 Je '16
Cost, rating and effect of current-limiting reactors. W. M. Dann and H. H. Rudd. Elec W 67:943-4 Ap 22 '16
Design of reactance coil. diag Elec R & W Elec'n 69:478-9 S 9 '16
Emergency operation of an electric furnace. G. Rutherford. il Elec W 68:1061 N 25 '16
Properties of reactor with iron core and air gap. S. Sano. diags Elec W 67:992-3 Ap 29 '16
Two versus three reactors for current limitation in three-phase feeder circuits. F. H. Kierstead. Gen Elec R 19:626-9 Jl '16
See also Choke coils
- Reagents, Chemical.** See Chemical reagents
- Real estate association, Railway.** See Railway real estate association
- Real estate business**
See also Farms
Accounting
Profits from real estate sales. W. Mucklow. J Account 21:321-32 My '16
- Reamers**
Diamond rifle barrel and receiver reaming machines. il Mach 22:609-10 Mr '16
Mechanical method for scraping motor bearings. il Sci Am 114:354 Ap 1 '16
- Receipts.** See Red fire

Receivers

- Accountants and receivership. J Account 21: 366-8 My '16
 Receiver's accounts. S. Walton. J Account 21: 74-80 Ja '16
 Reorganization through receivership. R. J. Bennett. J Account 21:354-62 My '16

Reciprocating parts. See Machinery—Design**Reclamation of land**

- Du Pont land reclamation contest for boys. Eng & Contr 46:139 Ag 9 '16
 Reclaiming the Everglades of Florida. D. A. Willey. il Sci Am 115:258-9 S 16 '16
 See also Drainage; Irrigation

Reclamation service (United States)

- Building the rolling-crest dam across Grand river. il plan Eng N 76:60-4 Jl 13 '16
 Large roller-crest dam, Grand valley project, Colorado. F. Teichman. il diags Eng N 76:1-4 Jl 6 '16
 Making the desert bloom. C. J. Blanchard. il Sci Am 114:242-3+ Mr 4 '16
 Scathing arraignment of reclamation service agitation. Eng Rec 74:66-7 Jl 15 '16
 U. S. R. S. project manager's duties defined. D. W. Cole. Eng Rec 74:108 Jl 22 '16

Reconnaissance, Military. See Military reconnaissance**Recorders**

- Boiler blowoff recorder. diags Power 44:744-5 N 28 '16
 Device for recording data in a boiler plant. G. B. Willcox. diag Am Soc M E J 38:231-2 Mr '16
 How did it happen? a novel hoist recorder for mines and elevators, designed to answer this question. F. C. Perkins. il Sci Am 115: 394 O 28 '16
 Industrial multiple recorder. R. H. Rogers. il diags Gen Elec R 19:866-8 O '16; Abstract. Elec W 68:822 O '16
 Record time of blowing boilers. W. E. Adams. diags Power 44:429 S 19 '16
 Recorder for pitometers; the directograph. il Eng N 74:1248 D 23 '15
 Recording instruments for the boiler house. F. J. Denk. diags Power 43:399-401 Mr 21 '16
 Service recorder for dredges and shovels. il Eng N 75:95-6 Ja 13 '16
 See also Boiler meters; Carbon dioxide recorders; Indicators; Meters; Oxygen recorders; Temperature recorders

Records

- Aid for merchant mechanics in office work. Metal Work 85:380-1 Mr 17 '16
 Calculation of weave room productive efficiency. S. P. Munroe. Textile World 51:3453+ Ag 5 '16
 Card system records cost of engineering. R. E. Backenhus. Eng Rec 74:502-3 O 21 '16
 Daily report form for steam shovel and drag line excavation work. Eng & Contr 46:265 S 20 '16
 Diagrammatic progress schedules. C. A. Whittemore. Brickb 25:8-10, 31-4, 53-6, 91-4 Ja-Apr '16
 Doom of the hand-picked mailing list. il Sci Am 115:461+ N 18 '16
 Effective color-tab system for light and power records. Elec R & W Elec'n 68:673-4 Ap 15 '16
 Exact distribution kept in form for comparing final costs. H. V. Knouse. Eng Rec 74:602 N 11 '16
 Handling repeat orders automatically. E. W. Palmer. Factory 16:227-9 Mr '16
 How power plant records may be interpreted. Elec W 68:1059-60 N 25 '16
 How two contractors keep daily record of job. Eng N 76:897 N 9 '16
 Keeping freight cars on the move. H. A. C. Taylor. Factory 16:451-2 My '16
 Keeping records of finished products. H. A. Russell. Iron Age 98:70-3 Jl 13 '16
 Keeping tabs in the Fifth avenue building. C. H. Bromley. Power 43:614-16 My 2 '16
 Keeping tabs on the power-plant equipment. W. Sailes. il Power 43:401-2 Mr 21 '16
 Keeping track of work in process. H. A. Russell. Iron Age 98:6-9 Jl 6 '16
 Loose-leaf sheets a convenience for troublemen. diag maps Elec R & W Elec'n 68:645 Ap 8 '16

- Machine tool building chart. Mach 23:141-2 O 16
 Record system for office-building plant. Power 43:15-17 Ja 4 '16
 Records at the Blackstone hotel, Chicago. W. A. Eberman. Power 43:551-6 Ap 18 '16
 Report form for steam shovel work. Eng & Contr 46:348 O 18 '16
 Scientific versus intuitive administration. D. T. Farnham. Eng M 51:849-54 S '16
 Set of error-saving production forms. H. S. Mitchell. Iron Age 98:446-7 Ag 31 '16
 Standard forms prepared for traffic-count data. Eng Rec 74:621 N 18 '16
 System of keeping records of current work in electrical inspection department. W. Devereux. Elec R & W Elec'n 67:1122-5, 1156-8 D 18-25 '15
 Tabulated tool drawings; system of making drawings of tools and keeping records of tools made. C. A. Kuhn. diags Mach 23:139-40 O 16
 Tool system of Cadillac motor car co. E; K. Hammond. il Mach 22:867-75; 23:143-53 Je, O '16
 Value of records to an engineer. R. S. Huey. Iron Tr R 59:689-91 O 5 '16
 Visualizing the essential facts of a business. D. T. Farnham. Eng M 51:651-6 Ag '16
 Yearly records of quantities purchased. H. A. Russell. Iron Age 97:539-41 Mr 2 '16

See also Card system in business; Electric railroads—Records; Engineering records; Engineering reports; Foundry records; Municipal records; Railroads—Records; Scientific management

Records, Municipal. See Municipal records**Recreation buildings**

- Artistic effects in Chicago park buildings. il Eng Rec 73:746 Je 3 '16
 Chicago municipal recreation pier. il Elec R & W Elec'n 68:905-7 My 20 '16

Recreation centers. See Social centers**Recruiting and enlistment**

- Spectacled soldiers. Sci Am S 81:253 Ap 15 '16
 Warrior at the lathe. Sci Am 115:56 Jl 15 '16

Rectangular pressure vessels. H. J. Vander Eb. Locomotive 30:164-9 Ap '15; Same. Mach 22: 861-2 Je '16; Abstract. Am Soc M E J 38:598 Jl '16**Rectifiers, Electric current.** See Electric current rectifiers**Red cross**

- American red cross ambulance service in France. N. Truslow. il Sci Am 115:324-5 O 7 '16

Red fire

- Old formula used by the Boston comedy company. G. H. Hartwell. Sci Am 114:59 Ja 8 '16

Red gum

- Commercial uses of red gum. il Am For 22: 644-7 N '16
 Identification and characteristics. S; B. Detwiler. il map Am For 22:641-4 N '16

Red lead

- Rapid method for the analysis of red lead and orange mineral. J. A. Schaeffer. il J Ind & Eng Chem 8:237-8 Mr '16

Red Wing republican

- Editors of Red Wing republican. Inland Ptr 58:104 O '16

Redondo Beach, California**Wharves**

- Concrete ocean pier built in form of hollow triangle. C. L. Roberts. il diag Eng N 76: 518-20 S 14 '16

Reduction, Chemical

- Processes of the organic chemical industry as used in the manufacture of intermediate products. il A. H. Ney and D. J. Van Marle. Met & Chem Eng 15:585-8 N 15 '16
 Researches on pyrimidines; the reduction of 2-mercaptop-6-chloropyrimidines. T. B. Johnson and A. W. Joyce. Am Chem Soc J 38: 1385-92 Jl '16

Redwood

- Redwood lumber and its uses. il Am For 22: 329-32 Je '16
 Redwoods; identification and characteristics. S; B. Detwiler. il Am For 22:323-8 Je '16

Reeds. See Looms

Reeling machines

Portable motor-driven reeling machine. S. L. Foster. *il Elec Ry J* 48:192-3 J1 29 '16

Reflection (light)

Diffusing media—projection and focusing screens. *Illum Eng Soc* 11:92-9 no 1 '16

Illumination efficiencies as determined in an experimental room; with discussion. W. Harrison and E. A. Anderson. *il diags Illum Eng Soc* 11:67-91 no 1 '16

Light-reflecting values of white and colored paints. H. A. Gardner. *il diag J Fr Inst* 181: 99-108 Ja '16; Same cond. *Am Gas Light J* 104:76-7 Ja 31 '16

Light transmission through telescopes. F. Kollmorgen. *diags Illum Eng Soc* 11:220-8; Discussion. 228-34 no 2 '16

See also Light; Reflectors

Reflectors

Developments in Maxolite steel reflectors. *il Elec R & W Elec'n* 69:434 S 2 '16

Effect of shape of filament on distribution of light from standard types of reflectors. E. Stroud. *diags Illum Engr* 9:69-70 F '16

Efficiency of projectors and reflectors. H. T. Harrison. *Illum Engr* 9:223-4 J1 '16

Elliptical-angle and fluted-bowl reflectors. *il Elec R & W Elec'n* 69:171 J1 22 '16; *Elec W* 68:193 J1 22 '16

Experiments on the eye with inverted reflectors of different densities. C. E. Ferree and G. Rand. *il plan Illum Eng Soc* 10:pt 1a 1097-1130; Discussion. 1130-70 no 9 '15

Holophane reflector-refractor. *il diag Elec R & W Elec'n* 69:302 Ag 12 '16

Hubbell steel reflectors. *il Elec W* 67:1434 Je 17 '16

Incandescent headlights for street railway and locomotive service. P. S. Bailey. *il diags Gen Elec R* 19:638-45 J1 '16

Mirrored glass reflectors for large gas-filled lamps. *il Elec R & W Elec'n* 68:391 F 26 '16

Parabolic mirror; with discussion. F. A. Benford, jr. *diags Illum Eng Soc* 10:905-31 no 9 '15

Recent developments in prismatic glassware. H. L. Jenkins and G. W. Roosa. *il Illum Eng Soc* 11:808-14 no 8 '16

Reflectors for glass bowls; with discussion. J. L. Stair and J. A. Hoeveler. *il diags Illum Eng Soc* 11:794-807 no 8 '16

Reflectors for portable lamps. *il Elec W* 68: 339 Ag 12 '16

What good lighting really is; automobile lighting analyzed from the lighting viewpoint. E. L. Clark. *diags Automobile* 34:414-15 Mr 2 '16

See also Light projection

Reformatories

Large combination steam and forced hot water heating plant; New York state reformatory for women, Bedford Hills, N. Y. *diags plans Heat & Ven* 12:26-35 D '15

Refractory materials

Aspects of the testing of refractories. A. V. Bleininger. *il Eng Soc W Pa* 32:612-34; Discussion. 634-46 O '16; Abstract. *Am Soc M E J* 38:931 N '16

Common refractory oxides. R. B. Sosman. *diags J Ind & Eng Chem* 8:985-90 N '16

Deterioration of refractory materials. H. B. Cronshaw. *il Iron Age* 98:1056-9 N 9 '16

High temperature insulation. P. A. Boeck. *diags Met & Chem Eng* 14:225-9 F 15 '16; Same cond. *Am Soc M E J* 38:637-40 Ag '16; Abstract. *Power* 43:306-7 F 29 '16

Refractories. W. H. Kelley. *Am Gas Light J* 104:166-7 Mr 13 '16

Refractories; discussion at meeting of Faraday society. *Engineer* 122:412-13 N 10 '16

Report read before the American gas institute. *Gas Age* 38:470 N 1 '16

Study of the silica refractories. J. S. McDowell. *bibliog il Am Inst Min E Bul* 119: 1999-2055 N '16

Tests of high-temperature furnace cement. W. S. Quigley. *Power* 44:73-4 J1 11 '16; Abstract. *Iron Age* 97:1383 Je 8 '16; Abstract. *Met & Chem Eng* 14:714 Je 15 '16; Abstract. *Metal Ind n s* 14:264 Je '16; Abstract. *Gas Age* 38:80 J1 15 '16

Zirconia-carborundum refractory material. *Eng & Min J* 100:970 D 11 '15

See also Celite; Fire brick; Magnesite

Refrigerating engineers, American society of. See American society of refrigerating engineers

Refrigeration and refrigerating machinery

Allen dense air ice machine. *Int Marine Eng* 21:344-6, 508-9 J1 N '16

Behavior of foreign gases in refrigeration plant. G. J. Trosper. *Power* 43:159 F 1 '16

Calculating the quantity of ammonia needed. C. E. Moulson. *Power* 44:462-3 S 26 '16

Calculating the quantity of ammonia needed. C. H. Bromley. *Power* 43:843-4 Je 13 '16

Cleaning the ammonia charge at the end of the season. F. W. Frerichs. *Power* 44:752 N 28 '16

Decomposition of ammonia. R. Plank. *Power* 42:914-15 D 28 '15

Difference between compression and absorption ammonia refrigerating systems. H. A. Everett. *diag Int Marine Eng* 21:347 J1 '16

Electric refrigerator for indoor ice rink. *il Elec W* 68:617-18 S 23 '16

Electrically operated refrigerating machine. *il Elec W* 66:1277 D 4 '15

Equations for ammonia based on new experimental material; abstract. F. G. Keyes. *diag Am Soc M E J* 38:272-3 Mr '16

Extracts from a refrigerating engineer's notebook. H. G. Gibson. *Power* 43:476-7; 44:687-9 Ap 4 N 14 '16

Extravagant refrigerating plants. V. J. Azbe. *Am Soc M E J* 38:962-3 D '16

Foreign gases and solids in the absorption plant. H. G. Gibson. *Power* 42:894-5 D 23 '15

Foreign gases in refrigeration. H. J. Macintire. *Power* 43:800-1 Je 6 '16

Frozen beef for Europe; S. S. Procidia fitted with carbonic acid refrigerating plant. *il diags plans Int Marine Eng* 21:272-82 Je '16

Handy tables for the refrigeration plant. *Power* 43:736 My 23 '16

Home size refrigerating plant. *il Metal Work* 86:243+ Ag 25 '16

New marine refrigerating machine. G. L. Kothny. *il diags plan Int Marine Eng* 20: 550-6 D '15

New method of refrigeration. W. H. Easton. *il diags Sci Am* 115:213 S 2 '16

New refrigerating machine; Westinghouse-Leblanc apparatus using water for cooling medium. *il Eng M* 50:780 F '16

Noncondensable gases in the absorption machine. E. P. McKelvy. *Power* 43:257-8 F 22 '16

Obstructions in the weak liquor line. D. L. Fagnan. *diag Power* 44:385-6 S 12 '16

Operating the carbon-dioxide refrigerating machine. F. T. Flenniken. *il diags Power* 43:903-5 Je 27 '16

Overhauling the refrigeration plant. F. E. Matthews. *Power* 42:579-80, 606-8, 859-60 O 26-N 2, D 21 '15

Power consumption of ammonia compressors. T. G. Thurston. *Power* 43:161-2 F 1 '16

Quantities of ammonia for refrigeration. A. G. Solomon. *Power* 43:506-7 Ap 11 '16

Refrigeration in France. L. Marchis. *Met & Chem Eng* 14:187-91, 312-17 F 15, Mr 15 '16; Abstract. *Power* 42:528-9 O 12 '15

Seay refrigeration system. *Power* 43:92 Ja 18 '16

Steam-jet refrigeration. J. C. Bertsch. *il diag Power* 43:58-60 Ja 11 '16

Symptoms of troubles in the refrigeration plant. T. G. Thurston. *Power* 43:350-1 Mr 14 '16

See also Ammonia compressors; Ammonia condensers; Cooling; Fruit, Precooling of; Ice—Manufacture; Refrigerator cars; Refrigerators

Accidents

Refrigeration plant explosion at Newark, N. J. *il Power* 44:469 S 26 '16

Review of some ammonia explosions. C. H. Bromley. *il Power* 44:621-6 O 31 '16

Laws and regulations

Refrigeration plant regulations, New York and Detroit. *diags Power* 43:931-4 Je 27 '16

Refrigeration and refrigerating machinery—Cont.**Testing**

- Testing absorption plants. J. C. Smallwood. Power 44:514-16 O 10 '16
 Testing refrigerating plants. J. C. Smallwood. Power 44:415-16 S 19 '16

Refrigeration on shipboard

- Conversion of the army transport McClellan into a refrigerator ship. F. J. French. diags Int Marine Eng 21:189-92 Ap 16
 Frozen beef for Europe; S. S. Procida fitted with carbonic acid refrigerating plant. il diags plans Int Marine Eng 21:272-82 Je '16

Refrigerator cars

- Moore type refrigerator and heater car. il diags Ry Age 60:484-7 Mr 17 '16; Ry Mech Eng 90:208-10 Ap '16; Ry R 58:486-8 Ap 1 '16
 Northern Pacific express cars. il diags Ry Mech Eng 90:243-6 My '16; Same. Ry Age 60:1211-14 Je 9 '16
 Refrigerator of perishable freight in transit. M. E. Pennington. Ry Age 61:883-7 N 17 '16; Same. Ry Mech Eng 90:585-8 N '16; Ry R 59:620-3 N 4 '16
 Refrigerator car brine tank valve. il diags Ry Mech Eng 90:322-3 Je '16; Ry R 58:758-9 My 27 '16
 Refrigerator cars for the Santa Fe. il diags plan Ry Age 60:294-7 F 18 '16
 Santa Fe refrigerator cars. il diags Ry Mech Eng 90:135-9 Mr '16

Refrigerator ships. See Refrigeration on shipboard**Refrigerators**

- Automatic household refrigerator. il Heat & Ven 12:54 D '15

Refuse, Utilization of

- Five thousand hogs eat Denver's garbage. il Eng Rec 74:135-6 Jl 29 '16
 Fuel from municipal waste. T. J. Lacy. il Munic Eng 51:165 O '16
 Sale of waste material. Munic J 41:261-2 Ag 31 '16

Refuse and refuse disposal

- Amounts of garbage in various cities. Munic J 39:952 D 23 '15
 Analytical study of garbage, rubbish and ashes. I. S. Osborn. Eng N 76:294-5, 348-9 Ag 17-24 '16
 Collection and disposal of city wastes: Mrs. Spiegelberg's plan. diags Munic Eng 49:219-21 D '15
 Disposal of animals and condemned food in New York. Munic J 40:198-9 F 10 '16
 Garbage disposal for Danville and Galesburg. Ill. S; A. Greeley. Eng N 76:684-5 O 12 '16
 Garbage disposal in Atlantic City. Munic J 39:917 D 16 '15
 New York garbage valuable. Eng N 75:179 Ja 27 '16
 Plans for garbage and refuse disposal in San Francisco. Munic Eng 49:223 D '15
 Refuse-collection and disposal methods. S. A. Greeley. Eng Rec 74:585 N 11 '16
 Refuse disposal by dumping in Omaha. W. Townsend. Munic Eng 51:139 O '16

See also Refuse, Utilization of; Refuse collection; Refuse incinerators; Sewage disposal; Street cleaning; Trade waste; Waste products; Water pollution

Reduction plants

- Collection and disposal of garbage in Dayton. O. J. E. Barlow. Eng & Contr 44:464-5 D 15 '15; Same. Munic J 39:913-15 D 16 '15
 Experts testify on means of eliminating odors in garbage reduction. Eng Rec 73:20-1 Ja 1 '16
 5-ton garbage reduction plant, Pontiac, Mich., yields profit to city. G. R. Bascom. Eng Rec 73:511 Ap 22 '16
 Garbage and rubbish disposal in Los Angeles. Calif. S. C. Simons. il plan Eng N 76:677-80 O 12 '16
 \$3,000,000 garbage disposal plant of New York city. Eng & Contr 46:436-7 N 15 '16
 \$2,500,000 garbage plant for New York. Eng Rec 73:349-50 Mr 11 '16

Refuse collection

- English costs on the collection of refuse by electric vehicles. Eng & Contr 46:308 O 4 '16

- Frequency of refuse collection. Munic J 39:882 D 9 '15

- Garbage collection and disposal by a small city. E. E. Duff, jr. Eng & Contr 46:411-12 N 8 '16

- Garbage collection in St. Louis. F. G. Pulley. il Munic J 41:29-31 Jl 13 '16

- Horse and motor for collecting city garbage. B. F. Miller, jr. Eng N 76:1006-7 N 23 '16

- New York's gasoline-electric trucks for garbage-collection and snow-removal service. il Sci Am 114:327+ Mr 25 '16

- Payments for refuse collections; different methods employed in more than two hundred cities. Munic J 39:981-2 D 30 '15

- Planning for garbage collection. Munic J 39:918-20 D 16 '15

- Refuse collection card with district map. il Eng N 75:34 Ja 6 '16

- Refuse collection in Los Angeles. Munic J 40:80 Ja 20 '16

- Refuse collection in Santa Cruz. Munic J 40:406 Mr 23 '16

- Sanitary collection of refuse and street sweepings. il Munic Eng 51:24 Jl '16

- Sanitary wagons for collecting municipal refuse. il Munic Eng 49:221-2 D '15

- Special design of wagon for refuse collection. diags Eng & Contr 46:396 N 1 '16

See also Ash collection; Refuse receptacles

Refuse incinerators

- Garbage incineration in Norfolk. W. R. Russell. Munic J 40:15-16 Ja 6 '16
 Gas incinerator. J. B. Ricketts. Gas Age 38:296, 362, 422, 488 S 15-N 1 '16

- Large mill-refuse burner built of concrete and brick. N. J. Blagen. il diags Eng N 76:588-9 S 28 '16

- Operating results of the Palo Alto refuse incinerator. Eng N 74:1125 D 9 '15

- Refuse destruction. J. B. C. Kershaw. Engineer 122:317-18 O 13 '16

- Refuse incinerators for Queens borough, New York city. J. C. Woodman. il plan Eng N 76:598-600 S 28 '16; Discussion. 76:1000-1 N 23 '16

Refuse receptacles

- Rubbish receptacle, Bureau of highways, Philadelphia, Pa. il Eng & Contr 46:395 N 1 '16

- Street refuse can. C. Saville. diags Eng & Contr 46:384 N 1 '16

Registration of architects. See Architects—License and registration**Reinforced concrete.** See Concrete, Reinforced**Reinforcing bars, Steel.** See Steel reinforcing bars**Relativity**

- Principle of relativity. Sci Am S 82:290-1 N 4 '16

Relays

- Automatic reclosing circuit breaker relay. il Coal Age 9:500 Mr 18 '16; Elec R & W Elec'n 68:480-1 Mr 11 '16; Elec W 67:618 Mr 11 '16
 Cutler-Hammer phase failure and phase reversal relay. il diags Power 44:387-8 S 12 '16
 General Electric design of reverse-phase relay. il Elec Ry J 48:737-8 O 7 '16; Elec R & W Elec'n 69:691 O 14 '16; Elec W 68:778 O 14 '16; Power 44:594 O 24 '16; Iron Tr R 59:896 N 2 '16

- Induction motor type line relay. il Ry R 59:255 Ag 19 '16

- Induction relay for selective overload protection. il Elec Ry J 48:901 O 21 '16; Elec R & W Elec'n 69:778 O 28 '16; Elec W 68:777-8 O 14 '16; Power 44:689-90 N 14 '16

- New developments in switchgear control. A. G. Collis. diags Engineer 122:49-51, 75-6 Jl 21-28 '16; Abstract. Elec W 68:535 S 9 '16

- Potential relay saves fuses in compressor circuits. G. H. Bleckwedel. diags Elec Ry J 48:454-5 S 9 '16

- Relays and their application. J. H. Wickman. diags Power 44:95-7 Jl 18 '16

- Restoration of service after a necessary interruption. F. E. Ricketts. diags Am Inst E E Pro 35:931-44 Je '16; Excerpts. Power 44:290 Ag 22 '16; Abstract (Relay arrangements for clearing short-circuits by interrupting generator field currents). Elec W 68:278-9 Ag 5 '16; Discussion. Am Inst E E Pro 35:1389-94 S 16

Relays—Continued

- Solenoid control relay. *il* Power 44:522 O 10 '16
 Thermostatic time element. *il* Elec Ry J 46:1225 D 18 '15
 Time limit overload relay. H. G. French. *il* Gen Elec R 19:853-5 O '16
 Timing relay operation with a rotating standard. W. H. Fellows. *diags* Elec W 68:80-1 J1 8 '16
 Unique air-pressure relay. F. C. Perkins. *il* Power 44:324 Ag 29 '16
 Westinghouse type overload relay for high-voltage alternating-current circuits. *il* Elec R & W Elec'n 69:736-7 O 21 '16; *il* Elec Ry J 48:942 O 28 '16; *il* Elec W 68:778-9 O 14 '16; *Power* 44:651-2 N 7 '16

Relief maps

- Construction of an unusual relief map. B. C. Heinly. *il* Eng & Contr 45:480-1 My 24 '16

Remington arms & ammunition co., Bridgeport, Conn.

- Building the Remington arms plant. T. Starrett and others. *il* Arch & Bldg 48:37-48, pls 15-17 Mr '16
 Gas-fired annealing furnaces for rifle parts handle 20-ton charges. *il* *diags* Am Gas Light J 105:209-10 O 2 '16
 Huge Remington small arms factory represents effective preparedness. *il* Iron Tr R 58:246-9 Ja 27 '16
 Remington arms & ammunition company's power plant. W. O. Rogers. *il* *diags* plan Power 43:310-15 Mr 7 '16
 Remington arms plant. *il* Iron Age 97:296-303 F 3 '16; *Abstract*. Eng & Contr 45:278 Mr 22 '16
 Remington arms power plant. *il* *diags* Iron Age 97:1064-7, 1120-2 My 4 '16

Rennin

- Rennin—a note and a correction. H. T. Graber. *J Ind & Eng Chem* 8:909-10 O '16

Repair ships

- Two shop boats for keeping plant in repair. H. Burgess. *plan* Eng N 75:173 Ja 27 '16

Repair shops

- Cast iron billets for repair shop use. W. Phillip. *diags* Foundry 44:119 Mr '16
 Handling your own repairs: based on a questionnaire. *Factory* 17:265-7 S '16
 Repair shop for the textile mill. G. H. Perkins. *il* *Textile World* 51:1395+ Mr 11 '16
See also Electric railroads—Shops; Railroads—Shops

Repair shops, Municipal

- Chicago has new shop plant for all public works. C. C. Saner. *il* *plan* Eng N 75:1017-19 Je 1 '16
 Municipal shops at San Diego. F. M. Lockwood. *il* Eng N 76:548-9 S 21 '16

Repair shops, Railroad. See Railroads—Shops**Repairing**

- Warring on waste. L. I. Thomas. *il* *Factory* 17:657-9 D '16
See also Repair ships; Repair shops; also subdivisions Repair and Maintenance and repair under names of subjects, e.g. Boilers—Repair, Locomotives—Repair, Pavements—Maintenance and repair

Reports, Engineering. See Engineering reports**Reptiles, Fossil**

- Gilmore's restoration of *Ceratopsaurus nasicornis*. R. W. Shufeldt. *il* *Sci Am S* 81:187 Mr 18 '16
 Is the Chinese dragon based on fact, not mythology? J. O. Irwin. *Sci Am* 114:399+ Ap 15 '16
 Monster extinct reptiles; some recent restorations at the National museum. R. W. Shufeldt. *il* *Sci Am S* 81:40-2 Ja 15 '16
See also Dinosaur national monument

Research, Geographical. See Geographical research**Research, Industrial. See Industrial research****Research, Institute for government. See Institute for government research****Research, Municipal. See Municipal research****Research, Scientific. See Scientific research****Reservoirs**

- Analysis of the failure of an earth-fill dam. G. Sterling. *il* *map* Eng N 75:56-61 Ja 13 '16
 California floods wreck Otay rock-fill dam. *il* *diags* *map* Eng Rec 73:225-8 F 12 '16
 Careful construction to make large dam for Youngstown, Ohio, watertight. *il* *diag* Eng Rec 74:407-9 S 30 '16
 Character and rate of silting of Elephant Butte reservoir, U. S. reclamation service. R. R. Goghlan and V. E. Lieb. Eng & Contr 46:249-50 S 13 '16; *Excerpt*. Eng Rec 74:349 S 16 '16
 Cleaning Nashville reservoir by hydraulicling. Eng N 75:1239-40 Je 29 '16
 Cumulative counterweights feature spillway crest. J. Wright. *diag* Eng Rec 74:286 S 2 '16
 Earth dam with sheet-steel diaphragm and cutoff. *il* *diag* *plan* Eng N 76:398-400 Ag 31 '16
 Effect of algae on bicarbonates in shallow reservoirs. S. T. Powell. *Am Water Works Assn J* 2:703-8 D '15
 Engineers recommend both reservoirs and levees to protect Columbus from floods. Eng Rec 73:419 Mr 25 '16
 Every possible precaution observed to make watertight Keechelus reservoir, Washington. C. E. Crownover. *diags* Eng Rec 74:474-6 O 14 '16
 Excavation for the Baldwin reservoir, Cleveland. *il* *diag* *plan* Eng N 75:838-9 My 4 '16
 Graphical solution of the problem of storm flow through a reservoir. A. S. Fry. Eng & Contr 45:370-2 Ap 19 '16
 Height of waves in the Belle Fourche reservoir. D. C. Henny. Eng N 75:1235 Je 29 '16
 Lining Hill View reservoir, New York city, with concrete and riprap. A. W. Tidd. *il* *plan* Eng N 75:1022-7 Je 1 '16
 Mass diagram for power and water-supply computations. W. L. Butcher. Eng N 76:376-8 Ag 24 '16
 Methods employed in grubbing the Kensico reservoir of the Catskill water supply works. G. A. Winsor. Eng & Contr 45:56-7 Ja 19 '16; *Same*. Eng Rec 73:92 Ja 15 '16
 Otay rock-fill dam failure. C. W. Baker. *il* *map* Eng N 75:236-9 F 3 '16
 Plans to silt Cedar river reservoir with clay and place asphaltic lining. Eng Rec 74:228-9 Ag 19 '16
 Puddling and rolling to assure impervious foundation for Keechelus reservoir. C. E. Crownover. *il* Eng Rec 74:534-6 O 28 '16
 Relining a leaky reservoir at Omaha, Neb. *il* *diag* Eng N 76:646-7 O 5 '16
 Reservoir and concrete dam in glacial drift. H. J. Langlois. *il* *diag* Eng N 75:106-8 Ja 20 '16
 Reservoir-capacity table. A. T. Clark. Eng N 75:467-8 Mr 9 '16
 Reservoir improvements at Castleton, N. Y. H. W. Taylor. *il* *Munic J* 40:101-2 Ja 27 '16
 Sealing Seattle's reservoir. *il* *Munic J* 41:253-6 Ag 31 '16
 Storage reservoir feeders planned to abate Naugatuck river nuisance. C. H. Preston, jr. *il* *map* Eng Rec 73:573-4 Ap 29 '16
 Wire rope removes moss from lake water supply. *il* Eng Rec 74:317-18 S 9 '16
See also Dams; Flood control; Irrigation; Kensico dam; Retaining walls; Spillways; Water storage; Water supply; Water supply engineering; Water towers; Waterworks

Reservoirs, Concrete

- Building concrete reservoirs without forms. *il* Eng N 76:894-5 N 9 '16
 Cement gun makes monolithic reservoir without forms. *il* Eng Rec 74:512 O 21 '16
 Concrete-lined oil reservoir, El Segundo, Calif. *il* Eng N 76:849 N 2 '16
 Concrete-lined reservoir at Salt Lake City, Utah. S. Q. Cannon. *il* Eng N 74:1249 D 30 '15
 Covered reinforced-concrete reservoir, Hibbing, Minn. R. E. McDonnell. *il* *plans* Eng N 75:990-1 My 25 '16
 Design and construction of the Austin, Texas, reinforced concrete reservoir. L. Lyndon. *diags* Eng & Contr 45:186-7 F 23 '16
 Design and cost of reservoir improvements at Duluth. E. W. Kelly. *il* Eng & Contr 45:262 Mr 15 '16

Reservoirs, Concrete—Continued

- Design features of the 3,500,000-gal. reinforced concrete reservoirs for Lansing, Mich. *diag Eng & Contr* 46:418-19 N 8 '16
- Huge circular reservoir in Dubuque protects congested-value business district. D. H. Maury. *il diags Eng Rec* 73:616-18 My 6 '16
- Improving Schenectady's water works. *il diags Munic J* 40:575-8 Ap 27 '16
- New water supply for Guayaquil. *il diags plan Engineer* 122:407-9, 418 N 10 '16
- Notched steel brackets aid placing of hoop reinforcement for concrete reservoir; Duluth's 5,000,000-gallon circular basin concreted during freezing weather. E. W. Kelly. *il diags Eng Rec* 74:312-14 S 9 '16
- Reconstruction of a reservoir at St. Louis, Missouri. *il diags Eng N* 74:1206-9 D 23 '15
- Reservoir and pumphouse. G. F. Alderson. *plan Eng & Min J* 102:547-8 S 23 '16
- Reservoir that will float; a German solution of the difficulties of subaqueous concrete work. J. F. Springer. *il Sci Am* 115:491 D 2 '16
- Salem covered concrete reservoir. W. B. Conant. *il diags Munic J* 40:231-2 F 17 '16
- Water supply of Salem, Mass. W. S. Johnson. *il diags map Boston Soc C E J* 3:1-18 Ja '16; Excerpts. *Eng & Contr* 45:127-8 F 9 '16; Discussion. *Boston Soc C E J* 3:19-22 Ja '16
- Water works reservoirs. D. H. Maury. *il diags Am Water Works Assn J* 3:622-52 Je '16; Excerpts. *Eng & Contr* 45:522-3; 46:32-3 Je 7, J1 12 '16; Excerpts. *Eng Rec* 73:803 Je 17 '16; Discussion. *Am Water Works Assn J* 3:779-90 S '16

Failures

- Failure of concrete reservoir built on old stone wall. *il Eng N* 76:404-5 Ag 31 '16
- Reinforced-concrete wall at Madison, Wis., tips when backing is removed. *il Eng N* 76:476-7 S 7 '16
- Reservoir wall, Madison, Wis., fails when back-fill is removed. *il Eng Rec* 74:343 S 16 '16

Resins. See Gums and resins

Resistance, Electric. See Electric resistance

Resistance units

- Compact Ward Leonard resistance unit. *il Automobile* 34:683 Ap 13 '16

Resisto plating racks and hooks. F. W. Hobbs. *Metal Ind n s* 14:263 Je '16

Resistometers

- Method for measuring resistivity of molten materials; results for certain alloys. E. F. Northrup and R. G. Sherwood. *diags J Fr Inst* 182:480-7 O '16

Resorcinol

- Colors produced by resorcinol in solutions of certain salts and the use of these colors as a means of detecting resorcinol in the presence of other phenols. F. C. Krauskopf and G. Ritter. *Am Chem Soc J* 38:2182-7 O '16

Resources. See Conservation of resources

Respiratory apparatus

- Apparatus for strengthening the lungs and improving respiration. *Sci Am S* 82:363 D 2 '16
- Gibbs rescue apparatus of the Bureau of mines. *il Coal Age* 10:890 N 25 '16
- New resuscitation device on the principle of measured pressures. *il Sci Am* 115:15 J1 1 '16
- Pulmosan respirator. *il Coal Age* 8:1019 D 18 '15
- Pumping air into the lungs* to save human life. *il Sci Am* 114:385 Ap 3 '16
- Recent developments in mine breathing apparatus. *il Sci Am* 114:506-7 My 13 '16
- Testing mine rescue apparatus. C. E. Pettibone. *il Coal Age* 10:875-7 N 25 '16

Responsibility

Responsibility. *Am Inst Arch J* 4:151-3 Ap '16

Restaurants

- Color effects and indirect lighting in a Los Angeles restaurant. F. S. Mills and J. A. Hoeveler. *il Elec W* 68:1106 D 2 '16
- Electric cafeteria at Sacramento, Cal. *il Elec W* 67:932-3 Ap 22 '16
- Electricity as a silent waiter in restaurants. *Sci Am* 114:429 Ap 22 '16

Restraint of trade

- Old and new views of contracts in restraint of trade or not to re-engage in same business. *Dom Eng* 75:36 Ap 8 '16

Resuscitation. See Electric shock; Mine rescue work; Respiratory apparatus

Retail trade**Accounting**

- System of accounts for retail merchants. U S Fed Tr Comm 19p J1 15 '16; Same. *Dom Eng* 76:359-61, 393-5 S 9-16 '16; Same. *Metal Work* 86:564-6, 622-5 N 3, 17 '16

Retaining walls

- Formulas for width of base of gravity retaining walls. T. A. Smith. *diags Eng Rec* 74:564-5 N 4 '16
- Retaining-wall failure that was not a failure. J. E. Smith. *Eng N* 74:1229 D 23 '15
- Staking out retaining walls on curved alignment. L. Leeds. *il diag Eng N* 75:1046-7 Je 1 '16

See also Dams; Reservoirs

Retaining walls, Concrete

- Bensalem avenue concrete arch bridge, Philadelphia, Pa. J. Jones. *il diag Eng & Contr* 46:91-3 J1 26 '16; Same cond. *Eng Rec* 74:504-5 O 21 '16
- Bone wall patent invalid because anticipated. *Eng Rec* 73:243-4 F 19 '16
- Bone's retaining-wall patent and its anticipations. *diags Eng N* 75:254-9 F 10 '16
- Box concrete retaining wall on Western Pacific Ry. J. H. Knowles. *il diags Eng N* 75:633-5 Ap 6 '16
- Building new retaining wall on top of old one. C. E. Hasse. *diags Eng N* 76:173 J1 27 '16
- Cost of reinforced concrete retaining wall and of special method of handling coal. *diag Eng & Contr* 45:207 Mr 1 '16
- Drainage drifts have apparently stopped slides at hillside grade separation. H. G. Wray. *il diag Eng Rec* 74:146 J1 29 '16
- Early history of the Bone cantilever wall. E. P. Bone. *Eng N* 75:573-5 Mr 23 '16
- Economical method of building retaining wall. Böhm. *diags Eng N* 75:952 My 18 '16
- Fallacy in the design of retaining walls. G. D. Fish. *Eng N* 75:268-9 F 10 '16
- Four engineering innovations on the Magnolia cutoff of the Baltimore and Ohio railroad. F. L. Stuart. *il Eng N* 75:1221-2 Je 29 '16
- Judge Anderson's decision on the Bone retaining wall. *Eng N* 75:338-9 F 17 '16
- Meridian park retaining wall at Washington, D. C. *il diag Eng N* 74:1218-19 D 23 '15
- Steel traveler and forms for retaining wall construction. *il Eng & Contr* 46:170 Ag 23 '16
- Weak retaining wall saved by anchored buttresses. *il diag Eng N* 76:30 J1 6 '16
- Yale bowl. T. C. Atwood. *Boston Soc C E J* 3:240-3 Je '16

Reverberatory furnaces. See Furnaces, Metallurgical

Revolvers. See Pistols

Rheostats

- Construction of a water rheostat capable of carrying 700 amp. C. L. Kasson. *il diag Elec W* 67:1306-7 Je 3 '16
- Field-rheostat connections. G. Fox. *diags Power* 44:170 Ag 1 '16
- Installing field rheostats. H. S. Knowlton. *il Power* 44:354 S 5 '16
- Liquid rheostat in locomotive service. A. J. Hall. *il diags Am Inst E E Pro* 35:153-7 F '16; Same cond. *Elec Ry J* 47:313-14 F 12 '16; Discussion. *Am Inst E E Pro* 35:716-17 My '16
- Liquid rheostatic control for large wound-rotor induction motors. *il diag Elec R & W Elec'n* 69:861-2 N 11 '16; *Elec W* 68:922-3 N 4 '16; *Eng & Contr* 46:430 N 15 '16
- Permanent water rheostat for hydroelectric plant, Montague City, Mass. *il Elec W* 68:1058 N 25 '16
- Temporary starting rheostats. N. L. Rea. *Power* 44:731 N 21 '16

See also Electric controllers; Electric resistance

Rhodesia. See Mines and mineral resources—Rhodesia

Rhone-Marseilles canal. See Canals—France

Ribbon

Winding and measuring ribbons. diag Textile World 51:3737+ Ag 26 '16

Richards, Theodore William, 1868-

Presentation of the Franklin medal to Theodore William Richards. por J Fr Inst 182: 74-86 J1 '16; Same abr. Met & Chem Eng 15:61-4 J1 15 '16

Ricketts, Louis Davidson, 1859-

President of the American institute of mining engineers. P. C. Ricketts. Eng N 75:219-20 F 3 '16

Riddles

Grand rotary sand riddle. il Munic J 41:497 O 19 '16
Motor-driven gyratory riddle. il Foundry 43: 379 S '15; Elec W 67:226 Ja 22 '16; Elec R & W Elec'n 68:212 Ja 29 '16
Motor-driven rotary sand riddle. il Foundry 43:510 D '15

Ridgway, Robert, 1862-

Sketch. por Eng Rec 73:265 F 19 '16

Rifle practice. See Target practice

Rifles

Aiming a rifle. W. Winans. Sci Am 114:425 Ap 22 '16
Aiming with the rifle. E. Edser. diags Sci Am S 81:124-5 F 19 '16
How a rifle is sighted. il Sci Am 113:516+ D 11 '15
Kick of the gun; abstract. E. C. Crossman. J Fr Inst 182:536 O '16
New type of military rifle fitted with a bayonet shield. il Sci Am 114:398 Ap 15 '16
Open sights vs. peep sights. E. C. Crossman. Sci Am 114:401 Ap 15 '16
Rifle fire; how it is employed in attack and defense. il Sci Am S 81:13 Ja 1 '16
See also Firearms

Manufacture

Albert Ball's magazine rifle of 1863. G. Hubbard. il diag Mach 22:1057-60 Ag '16
Diamond rifle barrel and receiver drilling machines. il Mach 22:607-9 Mr '16
Diamond rifle barrel and receiver reaming machines. il Mach 22:609-10 Mr '16
Drilling, reaming and straightening rifle barrels. W. H. Avis. il Mach 22:671-80 Ap '16
Harris rifle sight leaf notching machine. il Mach 22:910-11 Je '16
Manning, Maxwell & Moore machinery for rifle manufacture. il Mach 22:709-12 Ap '16
Military rifle. D. T. Hamilton and others. il diags Mach 22:629-69, 757-78, 854-7 Ap-Je '16; Same abr. (pt 1) Sci Am S 81:324-7 My 20 '16
Military rifle manufacture in light of requirements in present war. K. A. Juthe. Am Soc M E J 38:146-7 Je '16
Rifle machinery. il Iron Age 98:1051-2 N 9 '16
Two new rifle machines. il Iron Age 97:998-9 Ap 27 '16
United States munitions; a Springfield model 1903 service rifle; general specifications and barrel operations; abstract. diags Am Soc M E J 38:936; 1040 N-D '16

Specifications

Specifications for rifle barrels. D. T. Hamilton and others. il Mach 22:638-42 Ap '16

Testing

Military rifle. D. T. Hamilton and others. il Mach 22:854-7 Je '16
Testing hardness of rifle parts. A. F. Shore. il Mach 22:857-8 Je '16

Rifling bars

Machining rifling bars on the bench lathe. A. H. Cleaves. diags Mach 22:751-2 My '16

Rifling machine

Diamond rifling machine. il Mach 22:610-11 Mr '16

Right of way. See Railroads—Right of way

Ringelmann's scale

Ringelmann's scale for judging density of smoke. M. A. Rooney. il Heat & Ven 13:20-1 O '16

Riparian rights

Riparian rights settled by arbitration after suit. F. P. McKibben. Eng Rec 74:323-4 S 9 '16

Supreme court confirms the right to levee stream. Eng Rec 74:10 J1 1 '16

Rittman process. See Gasoline

River navigation

See also Barges

River pollution. See Water pollution

River terminals. See Terminals

River traffic

Coming restoration of the Mississippi as an important artery of commerce. O. R. Geyer. il Sci Am 114:215+ F 26 '16

Will river traffic follow river improvement? T: Wilkinson. Eng N 76:985 N 23 '16

Rivers

Defining the right and left bank of a stream. Eng N 76:856-7 N 2 '16

See also Dams; Flood control; Floods; Locks (canals and rivers); River traffic; Stream flow; Stream measurement; Water flow; Water fronts; Water pollution; Water power; Water supply; Waterways; also names of rivers, e.g. Mississippi river

Bank protection

Bank protection above Sibley bridge; Santa Fe Ry. il map Eng N 75:638-40 Ap 6 '16
Comparative cost of board and brush mattress for river bank protection. E. Edwards and R. Iakisch. il Eng & Contr 45:551 Je 14 '16
Country roads protected cheaply from scour. G: E. Schaefer. il Eng Rec 74:503 O 21 '16
Experimental concrete revetment proves feasible and economical. E. M. Markham. il Eng Rec 74:614-15 N 18 '16
Lumber mat bank protection on Mississippi river improvements. Eng & Contr 45:526 Je 7 '16
New type of mattress used for river-bank protection. A. C. Everham. il diags Eng N 76:1022-3 N 30 '16
Placing rock for shore protection by derrick boat. A. L. Richards. Eng & Contr 45:526 Je 7 '16
Tests of backing for flexible concrete river mattress. B. Okazaki. il diag Eng N 75:1080-1 Je 8 '16
Uses of willows for protection. G: N. Lamb. il U S Agric Bul 316:37-41 '15

Regulation

Engineers allocate all uses of Illinois river—floods, farming and fisheries. Eng Rec 74: 16-17 J1 1 '16
Flow of White river, Washington, to Tacoma diverted. map Eng Rec 74:587 N 11 '16
Improvement of river banks of Harrisburg, Pa. F. Gannett. il Munic Eng 50:44-6 F '16
Improving navigation on the upper Mississippi near Le Claire, Iowa. il map Eng Rec 72: 785-6 D 25 '15
Improving the Miami at Dayton. Munic J 40: 233-4 F 17 '16
Island of mud that threatens Memphis harbor. il Sci Am 114:447 Ap 29 '16
Miami conservancy plans are completed. Eng Rec 73:348 Mr 11 '16
Straightening the Great Miami river at Dayton, Ohio. R. H. Randall. il map Eng N 75: 64-5 Ja 13 '16

See also Channels; Dams; Flood control; Reservoirs; also names of rivers, e.g. Mississippi river

Riveted joints

Partition of the load in riveted joints. C. Batho. diags J Fr Inst 182:553-604 N '16; Summary. Eng Rec 74:651-2 N 25 '16
Selecting economical type of riveted joint for steel pipes and standpipes. F. H. Carter. Eng Rec 74:467-9 O 14 '16

Riveting

Boyer pedestal riveter. il Iron Tr R 59:896 N 2 '16; Ry Mech Eng 90:603-4 N '16
Hanna pneumatic door ring riveter. il Ry Mech Eng 90:157 Mr '16
Hanna riveting machine for columns. il Iron Age 97:373 F 10 '16
Hanna riveting machine for limited spaces. il Iron Age 98:290 Ag 10 '16; Iron Tr R 59:895 N 2 '16
Miniature riveting hammers. il Mach 22:594 Mr '16

Riveting—Continued

- Riveting die. A. O. Alexay. diag Mach 22:983 J1 '16
 Scientific studies applied to riveting. W. M. Kennedy. Int Marine Eng 21:408-13+ S '16
 21-ft. Hanna pneumatic riveting machine. Il Iron Age 96:1283 D 2 '15; Int Marine Eng 20:574 D '15; Iron Tr R 57:1287 D 30 '15; Ry Mech Eng 90:45 Ja '16
See also Joints

Rivets

- Countersunk rivets. R. Fleming. Eng N 76:496-7 S 14 '16
 Effect of sulphur in rivet steel. J. S. Unger. Il Power 44:144-6 J1 25 '16
 High and low carbon rivets. Y. Taji. Iron Age 97:264 Ja 27 '16
 Stresses in rivets used in direct tension. J. M. Friedland. diag Eng N 75:308-9 F 17 '16
 Tests of Champion rivets. Il Power 43:341 Mr 7 '16
 Why initial tension in rivets is not serious. E. Godfrey. diags Eng N 75:816-17 Ap 27 '16
 Road administration. *See* Highway administration
 Road builders' association, American. *See* American road builders' association
 Road congress, International. *See* International road congress
 Road foundations. *See* Roads—Foundations
 Road laws. *See* Highway law
 Road making machinery
 Austin pneumatic road scarifier. Il Munic J 41:21 J1 6 '16; Good Roads n s 12:55 J1 1 '16; Eng & Contr 46:106 Ag 2 '16
 Cutting haulage cost in road work to seven cents per ton-mile. G. N. Lamb. Il Eng & Contr 46:12-14 J1 5 '16
 Kelly-Springfield pressure cylinder scarifier. Il Good Roads n s 10:313 D 4 '15; Munic Eng 50:115 Mr '16
 Labor-saving equipment for concrete road building. Il Sci Am 113:517 D 11 '15
 Oiled pavements smoothed with scarifier and scraper. Il Eng Rec 74:232-3 Ag 19 '16
 7th National good roads show exhibits. Munic J 40:348 Mr 9 '16
See also Paving machinery; Road rollers

Road materials

- Adaptability of road paving materials to different conditions and localities. F. C. Pillsbury. Good Roads n s 11:110-13 Mr 4 '16
 Alternate type specifications for bituminous materials. A. H. Blanchard. Eng & Contr 45:499-500 My 31 '16
 Experimental research as applied to road building materials. H. K. Benson. Good Roads n s 12:151 O 7 '16
 Iron furnace slag for roads. Munic J 41:424 O 5 '16
 Large-sized soft stone for bituminous macadam. Il Eng N 74:1135 D 9 '15
 Public meetings of the American society of civil engineers for the discussion of highways. Good Roads n s 11:40-3 Ja 29 '16
 Reclaiming stone from old macadam for concrete base. S. E. Bates. Il Eng & Contr 45:132-4 F 9 '16
 Relation between the properties of hardness and toughness of road-building rock. P. Hubbard and F. H. Jackson, jr. Eng & Contr 45:275 Mr 22 '16
 Relation of mineral composition and rock structure to the physical properties of road materials. E. C. E. Lord. pls U S Agric Bul 348:1-26 '16; Summary (Stone for road material). Sci Am S 82:27 J1 8 '16
 7th National good roads show exhibits. Munic J 40:348 Mr 9 '16
 Tar-macadam paving in county of Clackmannanshire, Scotland. Il Munic Eng 51:150-2 O '16
 Utilization of pulverized earth in asphaltic paving mixtures. F. P. Smith. Good Roads n s 11:203-4; Discussion. 204-5 My 6 '16
See also Asphalt; Bituminous materials; Concrete; Gravel; Roads—Estimates; Roads—Terminology; Roads, Brick; Roads, Concrete; Tar

Terminology

- British usage in the nomenclature of bituminous road materials, British engineering standards committee report; excerpts. Good Roads n s 12:31 J1 1 '16; Munic Eng 51:8 J1 '16; Munic J 41:7-8 J1 6 '16
 Road building terms. Good Roads n s 10:288 D 4 '15

Testing

- Cost of state laboratory tests of road construction materials. Eng & Contr 45:473 My 24 '16
 Cost of testing road-building materials; New York. Eng N 76:455-6 S 7 '16
 Cost of testing road material by New York state highway department; tabulation. Eng & Contr 46:219 S 6 '16
 Methods for the determination of the physical properties of road-building rock. F. H. Jackson, jr. diags U S Agric Bul 347:1-27 '16
 Methods for the examination of bituminous road materials. P. Hubbard and C. S. Reeve. diags U S Agric Bul 314:1-48 '15
 Results of physical tests of road-building rock. P. Hubbard and F. H. Jackson, jr. chart U S Agric Bul 370:1-100 '16
 Revised standard test for penetration of bituminous material. Eng & Contr 46:24 J1 5 '16
 Standard analyses and tests of non-bituminous road materials. Eng & Contr 45:114-16 F 2 '16
See also Roads, Concrete—Testing

Road oilers

- Hand road oiler used in Los Angeles county. F. H. Joyner. Il Munic Eng 51:185 N '16
 Netco road oiling truck. Il Munic J 40:285 F 24 '16
 White combination road truck. Il Munic J 40:733-4 My 25 '16

Road oils

- Asphaltic road oils heated quickly in retort. Il diag Eng Rec 74:297-8 S 2 '16

Road rollers

- Cost of road roller operation. Munic J 39:884 D 9 '15
 Operation and care of the road roller. W. Huber. Good Roads n s 11:244 Je 3 '16

Road schools. See Highway engineering—Study and teaching**Road signs**

- Clarke county, Washington, marks its roads with simple signs. W. A. Schwarz. Il diag Eng Rec 73:836-7 Je 24 '16
 Color scheme of designating highway routes. Eng & Contr 46:388 N 1 '16
 Concrete signs. Munic J 40:451 Mr 30 '16
 Detour sign for use on closed roads. Il Eng & Contr 45:59 Ja 19 '16
 Marking through highway routes. Il Eng N 74:1280 D 30 '15
 Prize design for a concrete road sign. Il Good Roads n s 12:191 N 4 '16
 Road sign for use on Illinois state aid roads. diags Eng & Contr 46:388 N 1 '16
 Road signs for Jefferson highway. diags Eng & Contr 46:310 O 4 '16

Road traffic

- Blind turn; its dangers and various methods of solution. C. F. Barrett. Il diag Sci Am 114:24 Ja 1 '16
 Changes in traffic on Massachusetts highways. Eng & Contr 46:398 N 1 '16
 Distribution of traffic on a rectangular system of roads analyzed. E. W. James. Eng Rec 74:439-41 O 7 '16
 Motor trucks on Massachusetts highways. Eng & Contr 46:381 N 1 '16

Roadmasters' and maintenance of way association

- 34th annual convention, New York, Sept. 19-22. Ry Age 61:512-16 S 22 '16; Ry R 59:405-8 S 23 '16

Roads

- American road builders' association annual meeting, New York, Feb. 4, 1916. Good Roads n s 11:86-7 F 12 '16
 American road builders' association meets at Pittsburgh. Eng N 75:482-3 Mr 9 '16
 American road builders' association; papers presented at the thirteenth annual convention. Good Roads n s 11:110-30 Mr 4 '16

Roads—Continued

- Battle tactics and the paved highway. P. S. Bond. *Munic Eng* 50:207-8 My '16
- Boys organize to build better roads. *il Sci Am* 113:537 D 18 '15
- Concrete and asphalt roads to promote freight traffic. *Ry Age* 61:274 Ag 18 '16
- Concrete tracks proposed for an earth road. *diag Eng N* 76:469 S 7 '16
- Cost of provision for traffic during road construction. *Eng & Contr* 45:216 Mr 1 '16
- Country roads protected cheaply from scour. G. E. Schaefer. *il Eng Rec* 74:503 O 21 '16
- Determination of the justifiable cost in highway construction. E. S. Smith. *il Good Roads n s* 12:1-5 J1 1 '16
- Economic highway construction; an analysis of roadway sections. F. W. Harris. *diags Eng & Contr* 45:43-4 Ja 12 '16
- Element of safety in the construction and improvement of roads. *il Good Roads n s* 12:107-10 S 2 '16
- Good road surfacings for loose sandy soils. *Eng N* 76:1036-7 N 30 '16
- Ohio engineers discuss roads. *Eng N* 75:336-7 F 17 '16
- Paved highways and national defense. P. S. Bond. *Eng & Contr* 45:387-8 Ap 26 '16
- Planning for future traffic on trunk highways. H. W. Durham. *Munic J* 41:350-2 S 21 '16
- Public sentiment in regard to trunk road construction. J. H. Lewis. *Good Roads n s* 12:198 N 4 '16
- Road transportation costs in Texas. B. K. Coghlan. *Good Roads n s* 12:198-9 N 4 '16
- Selection of types for road surfaces. W. W. Crosby. *Good Roads n s* 11:11-12 Ja 1 '16
- Views of safety provisions in Massachusetts road work. *il Good Roads n s* 12:148 O 7 '16
- See also* Automobiles and roads; Causeways; Columbia highway; Curbs; Guard rails (for highways); Highway administration; Highway engineering; Jefferson highway; Lincoln highway; Motor trucks and roads; Pavements; Railroads; Road making machinery; Road materials; Road traffic; Sidewalks; Speedways; Street cleaning; Street railroads; Streets; Wheelways

Accounting

See Highway accounting

Congresses

- Concrete road conference evokes large volume of practical information. *Eng Rec* 73:295-6 F 26 '16
- Papers presented at the Worcester road congress, Dec. 14-17, 1915. *Good Roads n s* 11:9-18 Ja 1 '16
- See also* American good roads congress; American road builders' association

Contracts

- Analysis based on Minnesota experience of forms of contracts for road work. R. W. Acton. *Eng & Contr* 45:236 Mr 8 '16
- Considerations influencing choice between contract and day-labor road construction. R. W. Acton. *Eng & Contr* 45:286-7, 298-9 Mr 22-29 '16; *Abstract. Eng N* 75:644-5 Ap 6 '16
- Contractor's suggestion to engineers and inspectors. J. H. Gordon. *Good Roads n s* 11:115-17 Mr 4 '16
- Contractor's viewpoint. G. M. Savage. *Good Roads n s* 12:141-2 S 30 '16; *Excerpt. Munic J* 41:449-50 O 12 '16

Convict labor

- Convict labor for highway work. G. P. Coleman. *Good Roads n s* 10:208-10 O 2 '15; *Excerpt (Convict road construction in Virginia). Eng & Contr* 44:462-3 D 15 '15
- Convict labor for road work. J. E. Pennybacker, H. S. Fairbank, W. F. Draper. *il diags U S Agric Bul* 414:1-218 D 15 '16
- Convict labor in road work in California. *Eng & Contr* 46:111 Ag 2 '16
- Convicts build mountain highways in California. *Eng Rec* 73:251 F 19 '16
- Excellent results from model convict camp. *il Eng Rec* 73:840 Je 24 '16
- Experimental convict road camp near Atlanta, Ga. *Eng & Contr* 46:23 J1 5 '16

- Four construction and thirteen maintenance gangs care for McLennan county's roads. W. C. Davidson. *il map Eng Rec* 74:177-9 Ag 5 '16
- Highway construction in Washington by convict labor. *Eng & Contr* 45:494-5 My 31 '16
- Making roads and men. O. R. Geyer. *il Sci Am* S 81:408 Je 24 '16
- Virginia road work. G. P. Coleman. *il Good Roads n s* 12:181-3 N 4 '16

Cost

- Cheap water supply for concrete mixer on road construction. *il Munic Eng* 51:206 N '16
- Construction and maintenance of roads and bridges from July 1, 1913, to December 31, 1914. *U S Agric Bul* 284:1-64 '15
- Cost of engineering supervision in road work. L. Cobb. *Eng & Contr* 45:451-2 My 17 '16
- Crushed-stone roads cost \$3,500 to \$4,500 per mile. R. L. Longshore. *il Eng Rec* 74:449-50 O 7 '16
- Earth handled cheaply in grading Utah roads. *il Eng N* 76:28-9 J1 6 '16
- Four examples of concreting gang organization for road work. *Eng & Contr* 45:177-9 F 23 '16
- How New York state department paves with brick. H. E. Breed. *Eng Rec* 73:364 Mr 11 '16; *Excerpt (Construction costs). Eng & Contr* 45:260 Mr 15 '16
- Monolithic brick road built on old macadam base. *Eng Rec* 73:414 Mr 25 '16
- New York state road costs in 1915. *Eng & Contr* 46:219-20 S 6 '16
- State roads in Maryland. *Munic J* 39:880-1 D 9 '15
- Tar-macadam paving in county of Clackmannanshire, Scotland. *Munic Eng* 51:152 O '16
- Unit cost figures on Illinois state-aid roads. *Eng N* 75:1089 Je 8 '16
- See also* Haulage—Cost; Roads—Estimates; Roads—Maintenance and repair; Roads, Brick—Cost; Roads, Concrete—Cost; Roads, Gravel—Cost

Curves

- Alignment and drainage of rural highways. H. E. Bilger. *diag Eng N* 76:874-5 N 9 '16
- Extra right-of-way recommended at sharp curves. H. E. Bilger. *Eng Rec* 74:77 J1 15 '16
- Superelevation determined for highway curves. *diag Eng Rec* 74:293-4 S 2 '16
- Superelevation for highway curves systematized. *diags Eng Rec* 73:410-11 Mr 25 '16

Drainage

- Alignment and drainage of rural highways. H. E. Bilger. *Eng N* 76:875-6 N 9 '16
- Aprons reduce flood damage to road shoulders. G. E. Schaefer. *il Eng Rec* 73:673 My 20 '16
- Drain, drain, and drain some more. G. C. Warren. *Good Roads n s* 12:82-4 Ag 5 '16
- Drainage and preparation of sub-grade; committee report; abstracts. *Concrete* 8:102-3 Mr '16; *Eng Rec* 73:286-7 F 26 '16
- Handling surface and subsurface drainage. *Eng & Contr* 46:210-11 S 6 '16
- Method of protecting highway embankments. *il Eng & Contr* 46:385 N 1 '16
- Road subsurface drainage in clay cut. *Eng & Contr* 46:222-3 S 6 '16
- Why engineers fail to drain roads. J. S. Bixby. *Good Roads n s* 12:123-4 S 2 '16

Estimates

- Estimating gravel road material quantities and cost of hauling. *Eng & Contr* 45:23 Ja 5 '16
- Handy road chart. N. G. Near. *Eng & Contr* 46:21 J1 5 '16
- Materials required for road construction; tables for foremen of storage yard and road work as well as for the estimating engineer and contractor. *Munic Eng* 50:90 Mr '16

Federal aid

See Roads—Finance

Finance

- Allotment of federal funds for national forest roads. *Good Roads n s* 12:112 S 2 '16

Roads—Finance—Continued

- American association of state highway officials meets to discuss tentative rules for federal aid act. Good Roads n s 12:99-100 Ag 19 '16
- Bill for federal aid. Good Roads n s 11:241-3 Je 3 '16
- Bill for federal aid in road building signed by President Wilson. Good Roads n s 12:61-2 Jl 15 '16
- Congress passes \$85,000,000 good-roads bill. Eng Rec 74:42 Jl 8 '16
- Details of the apportionment of federal aid road funds. Good Roads n s 12:95 Ag 12 '16
- Discussion of the Federal aid bill from the standpoint of the states. C. B. Scott. Good Roads n s 12:133-4 S 16 '16
- Distribution of 1915 expenditures of state highway departments. Eng & Contr 46:396 N 1 '16
- Economic surveys of county highway improvement. J. E. Pennybacker and M. O. Eldridge. il maps U S Agric Bul 393:1-86, pl 1-36 '16
- \$85,000,000 federal aid road bill and apportionments for first year. Eng & Contr 46:117-18 Ag 2 '16
- Federal aid bill passed by the House of representatives. Good Roads n s 11:75 F 5 '16
- Federal aid bill passed by the Senate. Good Roads n s 11:220-1 My 13 '16
- Federal aid for good roads. C: E. Foote. Horseless Age 38:52+ Jl 15 '16
- Federal aid road act. Munic J 41:428 O 5 '16
- Federal road allotments. Eng Rec 74:130 Jl 29 '16
- Going in debt for good roads. M. O. Eldridge. Good Roads n s 12:209-10 N 18 '16
- Governor Fielder's recommendations for the work of highway improvement in New Jersey. Good Roads n s 11:68 F 5 '16
- Making the most of federal-aid road appropriations. D. A. Thomas. Eng N 76:795-6 O 26 '16
- Michigan to use federal aid money to complete Trunk line system. D. A. Thomas. Good Roads n s 12:197-8 N 4 '16
- Non-resident users should pay their share of cost of roads. Munic Eng 49:232-3 D '15
- Office of public roads prescribes rules for federal-aid appropriations. Eng Rec 74:405-6 S 30 '16; Same abr. Eng & Contr 46:305 O 4 '16
- Open letter to the Chicago tribune on the federal aid road law. H. P. Gillette. Eng & Contr 46:375 N 1 '16
- Operations of the New Jersey department of public roads during 1915. Good Roads n s 11:95-6 F 26 '16
- Post road construction under act of August, 1912. Eng & Contr 46:107 Ag 2 '16
- Proposed federal aid roads law. Eng & Contr 45:280 Mr 22 '16
- Road and bridge expenditures in United States. Eng & Contr 46:309-10 O 4 '16; Same. Eng Rec 74:466 O 14 '16; Same cond. Munic J 41:424-5 O 5 '16
- Road construction in national forests. Eng & Contr 46:299 O 4 '16
- Road funds from motor car registrations. Eng & Contr 46:115 Ag 2 '16
- State expenditures for road work. Good Roads n s 10:304 D 4 '15
- Uncle Sam as a road builder. Horseless Age 38:116 Ag 15 '16
- Wheel tax would provide road maintenance funds. Eng Rec 72:786 D 25 '15

See also Roads—Cost; Roads, State aid

Foundations

- Concrete foundations for asphalt pavements and roads subject to heavy travel. C. Richardson. Good Roads n s 11:205 My 6 '16
- Drain, drain, and drain some more. G: C. Warren. Good Roads n s 12:84 Ag 5 '16
- Old gravel and macadam for brick pavement foundation. H. E. Bilger. Eng N 75:1223 Je 29 '16

Radical changes in brick-pavement construction. P. C. McArdle. il Eng N 75:163-5 Ja 27 '16

See also Pavements—Foundations

Grades

- Grading methods on the Toronto-Hamilton highway in Ontario. H. S. Van Scoyoc. Good Roads n s 11:212 My 6 '16
- Grading roads preparatory to hard surfacing. N. B. Garver. Eng & Contr 46:20-1 Jl 5 '16
- What is 100 per cent grade? C: E. Manierre. Automobile 35:898-9 N 23 '16

Inspection

Wisconsin highway commission wants results, not excuses. Eng Rec 74:533-4 O 28 '16

Law

See Highway law

Location

Location and construction of our state roads, and the relation of the highway department to the county commissioners. J. Allen. Good Roads n s 12:152 O 7 '16

Maintenance and repair

- Clayton county, Iowa, patrol system for maintenance of dirt roads. E: B. Tourtellot. Eng & Contr 46:19-20 Jl 5 '16
- Construction and maintenance of roads and bridges from July 1, 1913, to December 31, 1914. U S Agric Bul 284:58-64 '15
- Construction and maintenance of roads in the arid West. il diags Eng N 76:481-5 S 14 '16
- Costs in Illinois of concrete road maintenance using portable heating kettle and auto truck. Eng & Contr 45:196 F 23 '16
- Disintegrated gravel, 1000-mile tour shows, is best national highway material in Colorado. W. W. De Berard. il map Eng Rec 74:460-3 O 14 '16
- Earth road maintenance by dragging in Minnesota. J: H. Mullan. Eng & Contr 45:158-9 F 16 '16
- Earth road maintenance in Hopkins county, Kentucky. Eng & Contr 46:302-3 O 4 '16
- Earth-road maintenance in irrigated lands. C. N. Perry. Eng N 76:297 Ag 17 '16
- Forms and instructions for road maintenance. Eng & Contr 45:539-40 Je 14 '16
- Four construction and thirteen maintenance gangs care for McLennan county's roads. W: C. Davidson. il map Eng Rec 74:177-9 Ag 5 '16
- Gravel roads of New Hampshire; patrol maintenance. il Eng N 74:1110-12 D 9 '15
- Illinois highway commission gives rules for dragging. Eng Rec 74:469 O 14 '16
- Kansas road maintenance by contract system. E. V. Moore. Eng N 76:204 Ag 3 '16
- Lessons in road maintenance from New York state. T. M. Ripley. Eng N 75:886-9 My 11 '16
- Maintaining the Washington-Atlanta highway. L. I. Hewes. Eng Rec 73:799-800 Je 17 '16
- Maintenance costs of New York state roads. H. E. Breed. Eng & Contr 45:246 Mr 15 '16
- Maintenance of macadam roads with bituminous binders. T. M. Ripley. il Eng N 76:1018-21 N 30 '16
- Methods for state road maintenance in Steele county, Minnesota. Eng & Contr 45:592-3 Je 28 '16
- Methods of Maryland roads commission for preventing erosion of road shoulders and slopes. il Eng & Contr 46:217-18 S 6 '16
- Motor truck lessens cost of maintaining gravel roads in Alabama. T: H. Edwards. il map Eng Rec 74:73-4 Jl 15 '16
- Motor truck, scarifier and road graders on gravel road maintenance; cost data. Eng & Contr 46:213 S 6 '16
- New York state highway maintenance analyzed. Eng Rec 73:455 Ap 1 '16
- Old roads maintained with roller and scarifier. G: E. Martin. Eng Rec 74:556 N 4 '16
- Patrol system, gang system and combination patrol and gang system of road maintenance in Maryland. H. G. Shirley. Eng & Contr 45:352-4 Ap 12 '16
- Patrol system improves condition of dirt roads 50 per cent at low cost. E. B. Tourtellot. Eng Rec 73:643-4 My 13 '16

Roads—Maintenance and repair—Continued

- Predominance of maintenance work in Pennsylvania in 1916. W. R. D. Hall. Eng & Contr 45:316 Ap 5 '16
- Quality of bituminous binder as affecting road wear. D. T. Pierce. Eng N 75:1101-2 Je 8 '16
- Repairing macadam with traction hauling outfit. Eng & Contr 45:580-1 Je 28 '16
- Road maintenance in the several states; symposium by twenty state highway officials. il Munic J 40:465-79 Ap 6 '16
- Road-maintenance stations for California highways. il Eng Rec 74:299-300 S 2 '16
- Road patrolmen; instructions regarding their duties. D. H. Winslow. Eng Rec 73:665 My 20 '16
- What are the road-maintenance costs in New York? D. T. Pierce. Eng & Contr 46:381 N 1 '16

See also Roads—Surface treatment; Roads, Concrete—Maintenance and repair

Specifications

- American society of municipal improvements 23d annual convention, Newark, N. J., Oct. 10-13. Eng Rec 74:488-9, 513-14 O 21 '16; Munic J 41:485-6 O 19 '16
- Highway work in Los Angeles county, California. il Good Roads n s 10:291-5 D 4 '15
- Standard tests for bituminous materials; report of committee of Am. Soc. of municipal improvements. Eng & Contr 46:384 N 1 '16
- Wide open or alternate asphalt specifications. D. T. Pierce. Munic J 41:513-14 O 26 '16

Standards

- Why not an American standard road? E. A. Trego. Eng & Contr 46:291 O 4 '16

State aid

See Roads—Finance; Roads, State aid

Statistics

- State and county highway construction in 1915 and work proposed for 1916. Eng & Contr 45:sup47-54 Ap 5 '16

Surface treatment

- Asphalt flush coat seals porous road surface. Eng Rec 73:669 My 20 '16
- Asphaltic road oils heated quickly in retort. il diag Eng Rec 74:297-8 S 2 '16
- Bituminous-carpeted concrete road of new type. il Eng N 75:271 F 10 '16
- Bituminous resurfacing of old roads. J. C. Travilla. il Munic Eng 50:11-12 Ja '16
- Bituminous wearing surfaces for old macadam. il Munic J 41:418-22 O 5 '16
- Calcium chloride for gravel road maintenance. C. J. Bennett. Eng N 75:87 Ja 13 '16
- Calcium chloride on gravel roads. il Munic Eng 50:20-1 Ja '16
- California's bituminous carpeted concrete roads show durability in service. W. C. Howe. il Eng Rec 73:603-4 My 6 '16
- Fibered asphalt for road surfacing. il Munic Eng 51:67-8 Ag '16
- Glutrin-bound macadam highway. C. J. Knisely. il Munic Eng 50:241-3 Je '16
- Good roads and the automobile. A. M. Jungmann. il Sci Am S 81:376-7 Je 10 '16
- Method and costs of building concrete roads with thin bituminous tops in California. A. B. Fletcher and C. B. Osborne. Good Roads n s 12:177-8 O 28 '16
- Methods and costs of constructing bituminous surfaced concrete roads in California. il diags Eng & Contr 46:214-15 S 6 '16
- Methods of remedying slipperiness on surface treated macadam roads. B. P. Harrison. Eng & Contr 45:161-2 F 16 '16
- Methods of resurfacing bituminous macadam park boulevards at Kansas City, Mo. R. R. Benedict. Eng & Contr 45:128 F 9 '16
- Pavement maintenance in Montclair, N. J. il Munic J 39:873-5 D 9 '15
- Preparation and use of asphalt, cut back with naphtha, for road surface treatment. J. Adler. Good Roads n s 11:206-7 My 6 '16
- Progress reports of experiments in dust prevention and road preservation, 1915. U S Agric Bul 407:1-71 '16
- Putting macadam roads in the permanent class. D. T. Pierce. il Eng & Contr 45:330-3 Ap 5 '16

- Reasons why tar carpets have peeled off concrete. Eng N 75:164-5 Ap 20 '16
- Resurfacing macadam roads with small brick cubes. Eng N 76:827 N 2 '16
- Resurfacing old roads. W. D. Uhler. Good Roads n s 10:210-12 O 2 '15; Same. Eng & Contr 44:418-19 D 1 '15; Same cond. Eng Rec 72:391-2 S 25 '15; Excerpts. Munic J 40:43-4 Ja 13 '16
- Rolling important for asphalt-gravel roads. A. P. Rice. Eng Rec 73:743-4 Je 3 '16
- Sand-tar coating to prevent slipperiness on macadam roads. H. C. Poore. Eng & Contr 45:227 Mr 8 '16
- Special concrete pavement for motor trucks; Los Angeles. diag Eng N 76:639 O 5 '16
- Worn macadam road repaired by tar spraying. R. H. McNeilly. il Eng Rec 74:281-3 S 2 '16
- See also* Roads, Oiled

Tractive resistance

- Testing highway characteristics with the electric vehicle. D. C. Jackson. Elec W 68:14 Jl 1 '16; Abstract. Eng & Contr 46:203-4 S 6 '16
- Tractive resistances to a motor delivery wagon on different roads and at different speeds. A. E. Kennelly and O. R. Schurig. bibliog il diags Am Inst E E Pro 35:1011-39 Je '16

Width

- Economical widths of pavement and shoulders; committee report. Concrete 8:103 Mr '16

Africa

- 16-foot rock road in Africa costs \$5,500 per mile. Eng Rec 74:354 S 16 '16

Alabama

- Highway construction in Alabama in 1915. R. F. Boyd. Eng & Contr 45:540 Je 14 '16

Arizona

- Caliche roads; a new type of construction in Arizona. il Eng N 75:832-3 My 4 '16

Arkansas

- Road building opportunities in Arkansas. Eng & Contr 46:103 Ag 2 '16

California

- California's concrete roads. W. D. Sohler. Eng Rec 72:687-8 D 4 '15
- Convicts build mountain highways in California. Eng Rec 73:251 F 19 '16
- \$18,000,000 worth of highways accounted for. Eng Rec 74:536-7 O 28 '16
- Highway work in Los Angeles county, California. il Good Roads n s 10:289-97 D 4 '15
- Methods and costs of constructing bituminous surfaced concrete roads in California. il diags Eng & Contr 46:214-15 S 6 '16
- Proposed \$1,500,000 highway system for Stanislaus county, Cal. Eng & Contr 46:309 O 4 '16
- Road maintenance in California. A. B. Fletcher. Munic J 40:478 Ap 6 '16
- Road-maintenance stations for California highways. il Eng Rec 74:299-300 S 2 '16
- State highway construction in California. Eng & Contr 46:107-8 Ag 2 '16
- What California has done with an \$18,000,000 road fund. Eng N 76:101 Jl 20 '16

Canada

- Development of highways in Canada and what it means to the Dominion. W. A. McLean. Good Roads n s 11:9-11 Ja 1 '16

China

- Roads—the salvation of China. Am Ind 16:43 Ap '16

Colorado

- Disintegrated gravel, 1000-mile tour shows, is best natural highway material in Colorado. W. W. De Berard. il map Eng Rec 74:460-3 O 14 '16
- Open scenic highway over Continental divide in southwestern Colorado. il Eng Rec 74:378-80 S 23 '16
- Parkdale-Cotopaxi cut-off; a state highway in Fremont county, Colorado. il Good Roads n s 10:302-4 D 4 '15

Roads—Colorado—Continued

Pike's Peak highway, Colorado. R. C. Hardman. *il Eng N 74:1201-3 D 23 '15*
Road maintenance in Colorado. T. J. Ehrhart. *Munic J 40:478 Ap 6 '16*

Connecticut

Problem of trunk line road bridge construction in Connecticut. C. G. Nichols. *Eng & Contr 45:324 Ap 5 '16*
Road maintenance in Connecticut. C. J. Bennett. *Munic J 40:469-70 Ap 6 '16*

Delaware

Coleman du Pont concrete road. *il Eng N 74:1265-7 D 30 '15*
Coleman du Pont road. C. M. Upham. *Good Roads n s 11:157-9 Ap 1 '16*; Same cond. *Eng & Contr 45:314-16 Ap 5 '16*; Abstract. *Munic J 40:690 My 18 '16*
Coleman du Pont road in Delaware. C. M. Upham. *il Good Roads n s 12:149-51 O 7 '16*

Florida

National highways in Florida. Mrs. K. Munroe. *il Am For 22:659-60 N '16*
Sand asphalt road construction in DeSoto county, Florida. *Eng & Contr 46:20 Jl 5 '16*

Great Britain

Work of the British road board during the past fiscal year. *Good Roads n s 12:151 O 7 '16*

Idaho

Road work in Power county, Idaho. C. White. *il Good Roads n s 11:109 Mr 4 '16*

Illinois

Illinois road maintenance. W. W. Marr. *Munic J 40:476-7 Ap 6 '16*
Maintaining concrete roads in Illinois. B. H. Piepmeier. *il Concrete 9:152-4 N '16*
Methods and cost of oiling earth roads in Illinois. *il Eng & Contr 46:112-15 Ag 2 '16*
Organization of the Illinois state highway department. W. W. Marr. chart *Good Roads n s 11:76-7 F 5 '16*
Planning and organizing for paving county roads. *il Eng N 76:248-50 Ag 10 '16*
Road situation and state highway department plans in Illinois. W. W. Marr. *Eng & Contr 45:324-5 Ap 5 '16*

See also Highway administration

Iowa

Clayton county, Iowa, patrol system for maintenance of dirt roads. E. B. Tourtellot. *Eng & Contr 46:19-20 Jl 5 '16*
Experiment with gravel roads in Iowa. T. R. Agg. *il Eng Rec 72:664-6 N 27 '15*; Excerpts. *Eng & Contr 44:419-20 D 1 '15*

Kentucky

Example of modern practice in road improvement; Fayette county, Kentucky. *il Eng & Contr 45:22-3 Ja 5 '16*; Abstract. *Eng N 75:76-7 Ja 13 '16*
Highway construction in Kentucky; tabulation. *Eng & Contr 46:105 Ag 2 '16*
Highway improvement in Kentucky. R. Wiley. *il Good Roads n s 12:153-4 O 7 '16*
Highway work in Kentucky. *il Good Roads n s 11:61-2 F 5 '16*
Rock asphalt roads in Kentucky. *Munic J 40:483 Ap 6 '16*

Louisiana

Combination gravel and clam shell road. *diag Eng & Contr 46:110 Ag 2 '16*
Solving Louisiana highway improvement problems. M. C. Huckaby. *Eng N 76:544-5 S 21 '16*

Maine

Road maintenance in Maine. P. D. Sargent. *Munic J 40:467 Ap 6 '16*
Thirty-mile macadam automobile road built through Maine woods to construct dam. *il Eng Rec 74:237-8 Ag 19 '16*

Maryland

Comments on eastern roads. T. R. Agg. *Eng Rec 74:142 Jl 29 '16*
Concrete breakers to prevent washing of Maryland roads. *Concrete Cem 7:210 D '15*; Same. *Munic Eng 49:214 D '15*

Maryland maintenance methods. *Munic J 40:473-4 Ap 6 '16*
Methods of Maryland roads commission for preventing erosion of road shoulders and slopes. *il Eng & Contr 46:217-18 S 6 '16*
Resumé of Maryland highway work. H. G. Shirley. *il Good Roads n s 12:184-5 N 4 '16*
State roads in Maryland. *Munic J 39:880-1 D 9 '15*

Massachusetts

History of highway development in Massachusetts. W. E. McClintock. *Good Roads n s 11:211-12 My 6 '16*
Quincy shore boulevard of the Boston Metropolitan park commission. *il Munic Eng 50:229-30 Je '16*
Sand and asphaltic oil roads of Massachusetts. *Eng & Contr 46:382-4 N 1 '16*
Sand and oil road construction methods improved by Massachusetts commission. W. D. Sohler. *Eng Rec 73:175-7 F 5 '16*
Sand and oil roads and surfaces. W. R. Farrington. *Boston Soc C E J 3:43-57 F '16*; Same. *Good Roads n s 12:192-4 N 4 '16*; Same cond. *Eng N 75:304-5 F 17 '16*; Excerpts. *Eng & Contr 45:153-4 F 16 '16*; Discussion. *Boston Soc C E J 3:209-28 My '16*

Michigan

Gravel roads are economical construction in Michigan. F. F. Rogers. *Eng N 76:392 Ag 31 '16*
Michigan to use federal aid money to complete Trunk line system. D. A. Thomas. *Good Roads n s 12:197-8 N 4 '16*
Outlook for road building in Michigan for 1916. F. F. Rogers. *Good Roads n s 12:120 S 2 '16*

Minnesota

Earth road construction in Murray county, Minnesota. *il Eng & Contr 46:115-17 Ag 2 '16*
Highway construction in Minnesota for 1916. *Eng & Contr 46:105 Ag 2 '16*
Methods for state road maintenance in Steele county, Minnesota. *Eng & Contr 45:592-3 Je 28 '16*
Road maintenance in Minnesota. J. H. Mullen. *Munic J 40:475-6 Ap 6 '16*
Spoilbank highways on Minnesota drainage ditches. *diag Eng & Contr 45:407 My 3 '16*
State rural highway construction in Minnesota. *Eng & Contr 46:223 S 6 '16*

New Hampshire

Roads at low cost for moderate traffic. F. E. Everett. *Good Roads n s 11:127-9 Mr 4 '16*; Same abr. *Eng & Contr 45:241-2, 266 Mr 8-15 '16*; Excerpt. *Munic J 40:465-7 Ap '16*

New Jersey

Governor Fielder's recommendations for the work of highway improvement in New Jersey. *Good Roads n s 11:68 F 5 '16*
Highway conditions in pioneer good-roads state unsatisfactory. H. Meixell, jr. *Eng Rec 74:623-4 N 18 '16*
Operations of the New Jersey department of public roads during 1915. *Good Roads n s 11:95-6 F 26 '16*

New York (state)

Constructing a New York state road. *il Munic J 40:823-4 Je 15 '16*
County road construction and maintenance. J. C. Dayton. *Good Roads n s 12:137-8 S 23 '16*
How New York state department paves with brick. H. E. Breed. *Eng Rec 73:364 Mr 11 '16*; Excerpt. (Construction costs). *Eng & Contr 45:260 Mr 15 '16*
New York state highway maintenance analyzed. *Eng Rec 73:455 Ap 1 '16*
New York state road costs in 1915. *Eng & Contr 46:219-20 S 6 '16*
New York state road progress. *Eng N 76:443 S 7 '16*
Road-building methods of New York state criticised; deputy commissioners reply. D. T. Pierce; H. E. Breed; F. W. Sarr. *Eng Rec 74:653-5 N 25 '16*
Road maintenance in New York state. F. W. Sarr. *Munic J 40:470-1 Ap 6 '16*
Rock work on the Storm King highway, Cornwall, N. Y. H. L. Hicks. *il Eng & Contr 46:433 N 15 '16*

Roads—New York (state)—Continued

- Scarcity of labor affects highway bidding. Eng & Contr 46:100 Ag 2 '16
 State road construction in New York in 1915. Good Roads n s 12:118 S 2 '16
 What are road-maintenance costs in New York? D. T. Pierce. Eng N 76:807-8 O 26 '16
 Year's progress on New York highways. H. E. Breed. Eng Rec 74:264-5 Ag 26 '16

North Carolina

- Plans and accomplishments of the new North Carolina highway commission. W. S. Fallis. Eng & Contr 45:317 Ap 5 '16

North Dakota

- Road construction costs and conditions in North Dakota. J. W. Bliss. Eng & Contr 45:321 Ap 5 '16
 Road maintenance in North Dakota. J. W. Bliss. Munic J 40:479 Ap 6 '16

Oklahoma

- Road maintenance in Oklahoma. W. P. Danford. Munic J 40:477-8 Ap 6 '16
 Work of the Oklahoma department of highways during 1915. Good Roads n s 11:96 F 26 '16

Oregon

- Columbia river highway in Oregon. il Good Roads n s 11:3-8 Ja 1 '16
 Multnomah county roads in the state of Oregon. il Eng N 75:49-50 Ja 13 '16
 Public sentiment in regard to trunk road construction. J. H. Lewis. Good Roads n s 12:198 N 4 '16

See also Columbia highway

Pennsylvania

- Demonstration of concrete pavement construction in Pennsylvania highway work. il Good Roads n s 10:300-1 D 4 '15
 Highway construction and maintenance system of Allegheny county, Pennsylvania. il Good Roads n s 11:72-5 F 5 '16
 Highway problems of the state of Pennsylvania. W. D. Uhler. il map J Fr Inst 181:791-804 Je '16
 Highway system of Pennsylvania. il Good Roads n s 11:63-7 F 5 '16
 Old National road in Pennsylvania. J. R. Wilson. il Good Roads n s 11:69-71 F 5 '16
 Predominance of maintenance work in Pennsylvania in 1916. W. R. D. Hall. Eng & Contr 45:316 Ap 5 '16
 Road maintenance in Pennsylvania. W. R. D. Hall. Munic J 40:472-3 Ap 6 '16

Philippine Islands

- Notes on the principles governing the design of the gravel and macadam highways of the Philippine Islands. J. L. Harrison. il Eng & Contr 46:220-2 S 6 '16
 Philippine road building. il Eng N 75:112-13 Ja 20 '16

Rhode Island

- Road maintenance in Rhode Island. I. W. Patterson. Munic J 40:468-9 Ap 6 '16
 Waterbound macadam road reconstruction in Rhode Island. I. W. Patterson. Eng & Contr 45:314 Ap 5 '16

Texas

- Four construction and thirteen maintenance gangs care for McLennan county's roads. W. C. Davidson. il map Eng Rec 74:177-9 Ag 5 '16
 Highway situation in Texas. R. L. Morrison. il Good Roads n s 12:145-7 O 5 '16

United States

- Construction and maintenance of roads and bridges from July 1, 1913, to December 31, 1914. U S Agric Bul 284:1-64 '15
 Economic surveys of county highway improvement. J. E. Pennybacker and M. O. Eldridge. il maps U S Agric Bul 393:1-86, pl 1-36 '16
 Mileage and types of road surfaces in middle Atlantic states. Eng & Contr 46:294 O 4 '16
 Public road mileage and revenues in the middle Atlantic states, 1914. U S Agric Bul 386:1-27 '16

- Review of road work in the United States during 1915 and forecast of work in 1916. Good Roads n s 12:17-31 Jl 1 '16
 Shackelford post roads bill. P. H. Daly. Sci Am 114:529 My 20 '16

See also United States—Public roads, Office of

Utah

- Earth road construction in Box Elder county, Utah. il diag Eng & Contr 46:292 O 4 '16
 Fifty-mile road in Utah costs \$26,000. il Eng Rec 74:356 S 16 '16

Vermont

- Road maintenance in Vermont. C. W. Gates. Munic J 40:467-8 Ap 6 '16

Virginia

- Road maintenance in Virginia. G. P. Coleman. Munic J 40:474 Ap 6 '16
 Virginia road work. G. P. Coleman. il Good Roads n s 12:181-3 N 4 '16

Washington

- Experience in paving roads of a Washington county. D. H. White. Eng N 76:844-5 N 2 '16
 Width and final development of paved county highways suited to western Washington. R. H. Thompson. Eng & Contr 46:295-6 O 4 '16

West Virginia

- Review of West Virginia highway work. A. D. Williams. il Good Roads n s 12:187-90 N 4 '16
 Road construction opportunities in West Virginia. Eng & Contr 46:3-4 Jl 5 '16
 Road improvement in McDowell county, West Virginia. Good Roads n s 12:213-14 N 25 '16
 Road maintenance in West Virginia. A. D. Williams. Munic J 40:474-5 Ap 6 '16

Roads, Bituminous

- Asphalt macadam construction in Lake county, Indiana. il Eng & Contr 46:11-12 Jl 5 '16
 Bituminous macadam road at Bear mountain in Palisades interstate park. B. H. Allbee. il Good Roads n s 11:233-4 Je 3 '16
 Constructing a New York state road. il Munic J 40:823-4 Je 15 '16
 Construction features of an asphaltic macadam road in Massachusetts. il Eng & Contr 45:558-9 Je 21 '16
 Construction field books for bituminous macadam highways. J. T. Crawford. Good Roads n s 11:164-6 Ap 1 '16
 Large-sized soft stone for bituminous macadam. il Eng N 74:1135 D 9 '15
 Merits of natural asphalt roads. C. Richardson. Good Roads n s 11:15-16 Ja 1 '16; Same. Munic J 40:483-4 Ap 6 '16
 Merits of refined asphalt roads. L. M. Law. Good Roads n s 11:16-17 Ja 1 '16; Same. Munic J 40:484-6 Ap 6 '16
 Penetration macadam roads. H. B. Stone. Munic J 40:234-6 F 17 '16
 Resurface bituminous macadam for 8.6 cents per square yard. Eng Rec 73:478 Ap 8 '16
 Rock asphalt roads in Kentucky. Munic J 40:483 Ap 6 '16
 Sand and asphaltic oil roads of Massachusetts. Eng & Contr 46:382-4 N 1 '16
 Sand and oil road construction methods improved by Massachusetts commission. W. D. Sohler. Eng Rec 73:175-7 F 5 '16
 Sand and oil roads and surfaces. W. R. Farrington. Boston Soc C E J 3:43-57 F '16; Same. Good Roads n s 12:192-4 N 4 '16; Same cond. Eng N 75:304-5 F 17 '16; Excerpts. Eng & Contr 45:153-4 F 16 '16; Discussion. Boston Soc C E J 3:209-28 My '16
 Sand asphalt road construction in DeSoto county, Florida. Eng & Contr 46:20 Jl 5 '16

See also Pavements, Asphalt; Pavements, Bituminous

Roads, Brick

- Brick paving on the Lincoln highway in Crawford county, Ohio. il Munic Eng 51:197-8 N '16
 Brick roads grow in favor. Munic Eng 49:234 D '15
 Brick roads with typical specifications and methods of testing. V. M. Peirce and C. H. Moorefield. diags 12 pls U S Agric Bul 373:1-40 '16

Roads, Brick—Continued

- Brick streets and roads. H. E. Breed. *Good Roads* n s 11:117-19 Mr 4 '16
- How New York state department paves with brick. H. E. Breed. *Eng Rec* 73:364 Mr 11 '16
- In monolithic pavements in Vermilion county, Illinois, brick are laid directly on concrete base. H. H. Edwards. *il diag Eng Rec* 74:400-2 S 30 '16
- Methods of brick pavement construction; recent development of the monolithic type and the mortar or cement-sand cushion. *il Good Roads* n s 11:55-61 F 5 '16
- Modern brick road construction. *Eng & Contr* 45:567-8 Je 21 '16
- Monolithic and semi-monolithic brick roads both satisfactory. W. C. Perkins. *Eng Rec* 74:569-70 N 4 '16
- Monolithic brick pavements successful in Illinois. *il Munic Eng* 50:31-2 Ja '16
- Monolithic brick road built on old macadam base. *Eng Rec* 73:414 Mr 25 '16
- Old gravel and macadam for brick pavement foundation. H. E. Bilger. *Eng N* 75:1223 Je 29 '16
- Railway in brick highway construction. *il Munic Eng* 50:98 Mr '16
- Recent advancement in brick paving. F. A. Churchill. *il Good Roads* n s 12:79-81 Ag 5 '16
- Recent developments in brick pavement construction. M. B. Greenough. *il Munic J* 41:412-15 O 5 '16
- Road paving around Ashokan reservoir; comparative cost of bituminous concrete and brick. F. B. Marsh, J. D. Gross and C. E. Price. *il Munic Eng* 51:19-20 Ji '16
- Sand-cement bed and mortar bed in Illinois brick road construction. *Eng & Contr* 46:110-11 Ag 2 '16
- Strength of unsupported brick pavement. *Munic J* 40:791 Je 8 '16
- Superelevation for highway curves systematized. *diags Eng Rec* 73:410-11 Mr 25 '16
- Templet for monolithic brick pavement construction. *il Eng & Contr* 46:119-20 Ag 2 '16
- Transferring paving materials from cars to pavement. *il Eng N* 74:1130-1 D 9 '15
- See also Pavements, Brick*

Cost

- Cost of brick roads in the country. *Sci Am* 115:3 Ji 1 '16

Roads, Concrete

- Advanced practice with economical results on the Allentown-Easton road. *il Concrete* 8:51-4 F '16
- Apparatus for measuring the wear of concrete roads. A. T. Goldbeck. *il Eng & Contr* 45:234-5 Mr 8 '16; *Excerpt. Eng Rec* 73:580 Ap 29 '16
- Belts for floating concrete should be waterproof. H. B. Bushnell. *Eng Rec* 74:599 N 11 '16
- Belts used successfully in floating concrete roads. H. B. Bushnell. *il Eng Rec* 74:481-2 O 14 '16
- Buckling of concrete roads. *Eng N* 76:324-5 Ag 17 '16
- Building concrete roads in Lake county, Ohio. H. P. Cumings. *Munic Eng* 50:224-6 Je '16
- California's bituminous carpeted concrete roads show durability in service. W. C. Howe. *il Eng Rec* 73:603-4 My 6 '16
- California's concrete roads. W. D. Sohler. *Eng Rec* 72:687-8 D 4 '15
- Canvas belt for finishing concrete road reduces cost. D. A. Thomas. *il Eng & Contr* 46:382 N 1 '16
- Canvas belt used for finishing concrete road surfaces. *il Eng N* 76:654-5 O 5 '16
- Coleman du Pont concrete road. *il Eng N* 74:1265-7 D 30 '15
- Coleman du Pont road. C. M. Upham. *Good Roads* n s 11:157-9 Ap 1 '16; Same cond. *Eng & Contr* 45:314-16 Ap 5 '16; *Abstract. Munic J* 40:690 My 18 '16
- Coleman du Pont road in Delaware. C. M. Upham. *il Good Roads* n s 12:149-51 O 7 '16
- Concrete road building in Norwalk, Conn. C. A. Betts. *il diags Munic J* 40:681-3 My 18 '16
- Concrete road-building methods yield profits in cash instead of in plant. H. E. Breed. *il plan Eng Rec* 73:202-4 F 12 '16
- Concrete road conference adopts code of recommended practice. *Eng Rec* 73:275-6 F 26 '16
- Concrete road construction in Oakland county, Michigan. M. De Glopper. *il Munic Eng* 50:140-5 Ap '16
- Concrete road in Fostoria, O., develops three cracks in a year. *Eng Rec* 74:87 Ji 15 '16
- Concrete roads in Baltimore county, Maryland. W. G. Sucro. *il Good Roads* n s 11:201-2 My 6 '16
- Concrete-roads the subject of national conference. *Eng N* 75:385-6 F 24 '16
- Concreting methods in New York state concrete road construction. W. M. Acheson. *Eng & Contr* 45:385 Ap 26 '16
- Construction methods on the Toronto-Hamilton concrete highway. H. S. Van Scoyoc. *Concrete* 8:54-5 F '16
- Construction methods tested in DuPont concrete road. C. Upham. *Eng Rec* 73:280 F 26 '16
- Cracks in 16 of 300 concrete road slabs analyzed. P. A. Beatty. *Eng Rec* 73:326 Mr 4 '16
- Creeping and heaving of concrete-road slabs. *Eng N* 75:1193-4 Je 22 '16
- Creeping and heaving of concrete road slabs. E. A. Trego. *Eng N* 76:369 Ag 24 '16
- Criticisms of Toronto-Hamilton concrete road answered. H. S. Van Scoyoc. *Eng N* 76:911 N 9 '16
- Demonstration of concrete pavement construction in Pennsylvania highway work. *il Good Roads* n s 10:300-1 D 4 '15
- Description of concrete road construction methods in Wayne county, Michigan. *Eng & Contr* 44:470-1 D 22 '15
- Details of a model concrete road in Pennsylvania. *il Eng N* 75:768-9 Ap 20 '16
- Details of construction plant and methods. Easton-Allentown concrete road. J. T. Gephart. *Eng & Contr* 45:445-6 My 17 '16
- Device checks subgrade on concrete road construction. R. P. Brown. *Eng Rec* 74:542 O 28 '16
- Dished surface for concrete on hilly country roads. *il Eng N* 76:214 Ag 3 '16
- Durability of concrete roads. A. Cameron. *Eng Rec* 74:600 N 11 '16
- Easton-Allentown concrete road; an exceptional example of modern road engineering. W. D. Uhler. *il Eng & Contr* 45:466-9 My 24 '16
- Easton-Bethlehem concrete highway. J. McNeal. *il Munic J* 41:415-17 O 5 '16
- Evidence presented on wear of concrete roads in Wayne county. D. T. Pierce. *il Eng Rec* 74:509 O 21 '16
- Expansion and contraction of concrete. *Munic J* 40:331-2 Mr 9 '16
- Experience with concrete roads in Maryland. *Eng N* 75:781 Ap 27 '16
- Experimental concrete roadway, Sacramento, California. A. J. Cleary. *il Eng N* 74:1158-9 D 16 '15
- Experimental reinforced concrete road in Louisiana. *diag Eng & Contr* 45:576-7 Je 28 '16
- Four examples of concreting gang organization for road work. *Eng & Contr* 45:177-9 F 23 '16
- Four years of concrete roads in Lake County, Ohio. H. P. Cumings. *Eng N* 75:411-12 Mr 2 '16
- Good practice in concrete road construction. *Eng & Contr* 45:191-2 F 23 '16
- Hydrated lime addition to concrete for road work. N. G. Hough. *Eng & Contr* 45:225-6 Mr 8 '16
- Hydrated lime in concrete road construction. *il Good Roads* n s 10:305-8 D 4 '15
- Jericho road, Kane co., Ill., after a year of service. *il Concrete* 9:105-6 S '16
- Labor-saving equipment for concrete road building. *il Sci Am* 113:517 D 11 '15
- Laying concrete highway with bituminous wearing surface—details of operation and cost. *il Munic Eng* 50:103-6 Mr '16
- Massachusetts experimental concrete pavement. W. R. Farrington. *Eng N* 74:1214 D 23 '15

Roads, Concrete—Continued

Method and cost of constructing concrete service test road at Philadelphia, Pa. W. H. Connell. Eng & Contr 45:390-3 Ap 26 '16; Same abr. Munic J 41:2-3 Jl 6 '16; Same abr. Concrete 9:99 S '16

Method and costs of building concrete roads with thin bituminous tops in California. A. B. Fletcher and C. B. Osborne. Good Roads n s 12:177-8 O 28 '16

Methods and costs of concrete road maintenance in Ohio. A. M. Hinkle. Eng & Contr 45:435-7 My 10 '16

Methods and costs of constructing bituminous surfaced concrete roads in California. il diags Eng & Contr 46:214-15 S 6 '16

Mill-bent angle-iron as concrete road screed. S. Hobbs. Eng Rec 73:709-10 My 27 '16

Miracles vs. mysteries in highway construction. D. T. Pierce. Munic Eng 51:97-8 S '16

Mysteries of concrete road construction. W. H. Reed. il Munic Eng 51:13-15 Jl '16; Abstract. Good Roads n s 11:243 Je 3 '16

National conference on concrete road building considers 17 committee reports and recommends practice. Concrete 8:99-109, 161-70, 222-7 Mr-My '16

National conference on concrete road building held in Chicago, February 15 to 18; abstracts of committee reports. Eng Rec 73:286-9 F 26 '16

New method of finishing concrete roads. Eng & Contr 46:303 O 4 '16

Organization as influenced by physical conditions of concreting gangs for road construction. W. F. McVaugh. Eng & Contr 45:254-5 Mr 15 '16

Organization as influenced by plant of concreting gangs for road construction. H. P. Gillette. plan Eng & Contr 45:463-5 My 24 '16

Pelham Manor concrete road. C. A. Mullen. il Munic Eng 50:2-5 Ja '16

Portland cement concrete pavements for country roads. C. H. Moorefield and J. T. Voshell. il U S Agric Bul 249:1-34 '15

Proportioning concrete for road construction. W. M. Kinney. Eng & Contr 44:463 D 15 '15

Proportioning of concrete for road work; suggestions for improvement and obstacles in the way. W. W. Crosby. Eng & Contr 45:41-3 Ja 12 '16

Proposed standard form for reporting costs of concrete roads. Eng & Contr 45:326 Ap 5 '16

Reasons why tar carpets have peeled off concrete. Eng N 75:764-5 Ap 20 '16

Recent developments in the building of concrete roads. W. D. Uhler. Good Roads n s 11:129-30 Mr 4 '16; Same. Munic J 40:481-3 Ap 6 '16

Report of the committee on resolutions to the concrete road building conference. Good Roads n s 11:142-3 Mr 11 '16

Resistance of concrete roads to wear. P. S. Wilson. il Munic Eng 51:68-70 Ag '16

Should wider joints be provided in concrete roads laid late in the season? H. S. Van Scoyoc. il Eng Rec 74:465-6 O 14 '16

Simple reinforcement suggested to stop concrete-road cracks. diag Eng Rec 74:643 N 25 '16

Smooth concrete roads produced by accurate headers. il Eng Rec 73:216 F 12 '16

Special concrete pavement for motor trucks; Los Angeles. diag Eng N 76:639 O 5 '16

Studies to find cause of concrete-road cracks. W. M. Kinney. Eng Rec 74:621 N 18 '16

Study of cracks in a concrete roadway at Indiana university. U. S. Hanna. diag Eng & Contr 45:357-8 Ap 12 '16

Subgrade construction for concrete roads. A. H. Gilliland. Eng & Contr 45:325-6 Ap 5 '16

36-mile concrete road, built by day labor, will link Canadian cities. H. S. Van Scoyoc. il Eng Rec 73:520-1 Ap 15 '16

Water supply for concrete pavement construction. Eng & Contr 45:425-7 My 10 '16

See also Pavements, Concrete

Cost

Cost of an Illinois concrete road. Eng & Contr 45:108 F 2 '16

Cost of concrete road in Blairsville township, Illinois. Eng & Contr 45:571 Je 21 '16

Cost of concrete roads in the United States in 1914. Eng & Contr 45:330 Ap 5 '16

Cost of construction. Eng Rec 73:288-9 F 26 '16

Grading aggregates for Illinois concrete roads; tabulation. A. H. Hunter. Concrete 8:209 My '16

Laying concrete highway with bituminous wearing surface—details of operation and cost. il Munic Eng 50:103-6 Mr '16

Method and cost of constructing concrete service test road at Philadelphia, Pa. W. H. Connell. Eng & Contr 45:390-3 Ap 26 '16; Same abr. Munic J 41:1-13 Jl 6 '16; Same abr. Concrete 9:99 S '16

National conference on concrete road building; report of committee on cost of construction. Concrete 8:224-6 My '16

See also Roads, Concrete—Maintenance and repair

Maintenance and repair

Concrete roads of Wayne county, Michigan; abstracts from ninth annual report. Munic Eng 49:231-2 D '15; Eng Rec 72:703-4 D 4 '15; Eng N 75:69 Ja 13 '16

Costs in Illinois of concrete road maintenance using portable heating kettle and auto truck. Eng & Contr 45:196 F 23 '16

Maintaining concrete roads in Illinois. B. H. Piepmeier. il Concrete 9:152-4 N '16

Methods and cost of maintenance. Eng Rec 73:289 F 26 '16

Resurfacing old concrete with a new concrete wearing surface. E. N. Hines. Munic Eng 51:196-7 N '16; Same cond. Eng N 76:690 O 12 '16; Same cond. Eng Rec 74:434-5 O 7 '16

Testing

Testing concrete in roads. Eng N 75:27 Ja 6 '16; Same. Munic J 40:73-4 Ja 20 '16

Tests needed to verify concrete-road crack theory. S. Whinery. Eng Rec 74:529-30 O 28 '16

Tests on hydrated lime addition to concrete for road work. E. Ashton. Eng & Contr 45:206-7 Mr 1 '16

To determine proper concrete base thickness for roads by test. Eng Rec 73:44 Ja 8 '16

Wear of concrete in roads—how tested. D. A. Abrams. Eng Rec 74:50-1 Jl 8 '16

Roads, Desert

Construction and maintenance of roads in the arid West. il diags Eng N 76:481-5 S 14 '16

Plank roadway laid across shifting desert sands. il Eng Rec 74:131-2 Jl 29 '16

Roads, Earth

Earth road construction in Box Elder county, Utah. il diag Eng & Contr 46:292 O 4 '16

Earth road construction in Murray county, Minnesota. il Eng & Contr 46:115-17 Ag 2 '16

Method of constructing sand-clay roads in Goldsboro township, N. C. Eng & Contr 46:293 O 4 '16

Sand clay roads. J. McNeal. Munic J 41:411 O 5 '16

Sand-clay street surfacing from sewer trenches. M. Maffitt. il Eng N 76:752 O 19 '16

Roads, Experimental

Chevy Chase road experiment. T. R. Agg. Eng Rec 74:142 Jl 29 '16

Experimental concrete roadway. Sacramento. A. J. Cleary. il Eng N 74:1158-9 D 16 '15

Experimental reinforced concrete road in Louisiana. diag Eng & Contr 45:576-7 Je 28 '16

Massachusetts experimental concrete pavement. W. R. Farrington. Eng N 74:1214 D 23 '15

Roads, Gravel

Calcium chloride for gravel road maintenance. C. J. Bennett. Eng N 75:87 Ja 13 '16

Calcium chloride on gravel roads. il Munic Eng 50:20-1 Ja '16

Construction of gravel roads by the feather edge method. H. E. Bilger. diag Eng & Contr 45:439-40 My 10 '16

Estimating gravel road material quantities and cost of hauling. Eng & Contr 45:23 Ja 5 '16

Roads, Gravel—Continued

- Experiment with gravel roads in Iowa. T. R. Agg. *il Eng Rec* 72:664-6 N 27 '15; Excerpts. *Eng & Contr* 44:419-20 D 1 '15
- Gravel road maintenance in Dallas county, Texas. *il Eng & Contr* 46:385 N 1 '16
- Gravel roads are economical construction in Michigan. F. F. Rogers. *Eng N* 76:392 Ag 31 '16
- Gravel roads constructed in northwestern Michigan. L. H. Neilsen. *Eng & Contr* 45:577-8 Je 28 '16
- Gravel roads of New Hampshire; patrol maintenance. *il Eng N* 74:1110-12 D 9 '15
- Harrowing highly important in gravel roads. H. E. Bilger. *Eng Rec* 74:79-80 JI 15 '16
- How New Hampshire builds gravel roads for less than four thousand dollars a mile. F. E. Everett. *Munic J* 41:262 Ag 31 '16
- Motor truck lessens cost of maintaining gravel roads in Alabama. T. H. Edwards. *il map Eng Rec* 74:73-4 JI 15 '16
- Road drainage foundations. G. W. Cooley. *Munic J* 39:984 D 30 '15
- Roads at low cost for moderate traffic. F. E. Everett. *Good Roads n s* 11:127-9 Mr 4 '16; Same abr. *Eng & Contr* 45:241-2, 266 Mr 8-15 '16; Excerpt. *Munic J* 40:465-7 Ap 6 '16

Cost

- Cost of gravel roads in Clay county, Iowa. *Eng & Contr* 45:460 My 17 '16

Roads, Macadamized

- County road construction and maintenance. J. C. Dayton. *Good Roads n s* 12:137-8 S 23 '16
- Macadam work in Carlisle, Pa. *Munic J* 39:880 D 9 '15
- Surface treated macadam in Warren county, Mississippi. *il Good Roads n s* 11:155-6 Ap 1 '16
- Thirty-mile macadam automobile road built through Maine woods to construct dam. *il Eng Rec* 74:237-8 Ag 19 '16

Roads, Military

- Making of military roads. *il Sci Am S* 81:404 Je 24 '16

Roads, Mountain. See Mountain roads**Roads, Oiled**

- Arizona experiments with oiling of roads. *Eng Rec* 74:584 N 11 '16
- Auto truck helps double oiled-street mileage. *Eng Rec* 74:526 O 28 '16
- Highway work in Los Angeles county, California. *il Good Roads n s* 10:292-3 D 4 '15
- Maintenance of macadam roads with bituminous binders. T. M. Ripley. *il Eng N* 76:1018-21 N 30 '16
- Methods and cost of oiling earth roads in Illinois. *il Eng & Contr* 46:112-15 Ag 2 '16
- Oil treatment for highways. W. R. Farrington. *Good Roads n s* 11:166-9 Ap 1 '16
- Oiling Illinois earth roads. *Eng N* 75:400 Mr 2 '16
- Oiling on earth roads. B. H. Piepmeier. *Sci Am S* 81:250-1 Ap 15 '16; Excerpt (Cost of surface oiling of earth roads). *Eng & Contr* 45:85 Ja 26 '16
- Surface oiling to improve old gravel road. *Eng Rec* 73:806 Je 17 '16
- See also* Road oilers

Roads, Plank

- Plank roadway laid across shifting desert sands. *il Eng Rec* 74:131-2 JI 29 '16

Roads, Sand and oil. See Roads, Bituminous**Roads, State aid**

- Highway system of Pennsylvania. *il Good Roads n s* 11:63-7 F 5 '16
- New route between Pittsfield and Huntington, Massachusetts. G. R. Smith. *il Good Roads n s* 11:245-6 Je 3 '16
- Present status of earlier state aid roads in New York; tabulation. *Eng & Contr* 45:543 Je 14 '16
- State aid roads accepted in 1915 by the Illinois highway commission. *Good Roads n s* 11:100 F 26 '16

Roads, Tared

- Reasons why tar carpets have peeled off concrete. *Eng N* 75:764-5 Ap 20 '16

Roads and automobiles. See Automobiles and roads**Roasters. See Furnaces, Metallurgical****Rochester, Minnesota****Hospitals**

- State hospital plant. T. Wilson. *il plans Power* 43:170-4 F 8 '16

Rochester, New York**Floods**

- Record flood from melting snows passes through Rochester. J. P. Wells. *il maps Eng Rec* 73:476-8 Ap 8 '16

Sewerage

- Largest Imhoff tank plant nearly ready to treat Rochester's sewage. C. A. Poole. *il diags plan Eng Rec* 73:204-8 F 12 '16
- Sewage treatment plant. diags *Munic Eng* 50:180-2 My '16
- Unlined sewer tunnel in rock at Rochester. C. L. Raymond. *il diags Eng N* 76:883-4 N 9 '16

Rochester railway & light company

- Developing more water power on Genesee at Rochester. *il diags plan Eng N* 76:821-5 N 2 '16; Same. *Power* 44:683-4 N 14 '16

Rock avalanches. See Landslides**Rock drills**

- Carr bits for drill steel. *il Eng & Min J* 101:13 Ja 1 '16
- Churn-drilling costs, Sacramento hill, Arizona. A. Notman. *il map Am Inst Min E Bul* 104:1677-90 Ag '15; Same cond. *Eng & Contr* 46:349-51 O 18 '16; Abstract. *Eng & Min J* 101:226-7 Ja 29 '16
- Comparative tests of piston-drill bits. C. L. Forbes and L. M. Cummings. *il Eng & Min J* 100:1008-9 D 18 '15
- Denver Drednaught drill. *il Coal Age* 9:803-4 My 6 '16
- Denver electric rock drill. *il Coal Age* 8:932 D 4 '15; *Eng & Min J* 100:972 D 11 '15
- Drill-collaring machine. E. W. R. Butcher. *diag Eng & Min J* 102:260-1 Ag 5 '16
- Drill steel and its treatment. E. M. Weston. *diags Eng & Min J* 100:1003-5 D 18 '15
- Exploratory borehole. J. Steelman. *il Coal Age* 10:627-30 O 14 '16
- Hand drills in structural work. C. C. Phelps. *il diag Eng N* 75:780-1 Ap 27 '16
- Holman hammer drill. E. M. Weston. *il Eng & Min J* 102:863 N 11 '16
- Kellow rock drill. *il Eng & Min J* 101:729-30 Ap 22 '16
- Leyner versus piston drill. L. P. Gordon. *Eng & Min J* 100:966 D 11 '15
- Light portable drill. W. Fleming. *il Coal Age* 9:485 Mr 18 '16
- Machine-drilling at Treadwell mines, Alaska. E. P. Kennedy. *Eng & Min J* 101:643-4 Ap 8 '16
- Method of handling drills in shaft sinking. J. M. Brown. *diag Eng & Contr* 44:449 D 8 '15
- Mounting for hammer drills. *diags Eng & Min J* 101:437-8 Mr 4 '16
- New Konomax drill. E. M. Weston. *diags Eng & Min J* 101:564 Mr 25 '16
- Preventing drill-steel breakage. C. M. Carter. *Eng & Min J* 101:14 Ja 1 '16
- Reducing air-drill repair costs. F. Ayer. *il Eng & Min J* 102:864-6 N 11 '16
- Rock drilling with a gasoline-air drill. H. L. Hicks. *il Eng & Contr* 46:255-6 S 20 '16
- Self-rotating hammer drill. *diags Eng & Min J* 101:565 Mr 25 '16
- Shanking drill steels. C. C. Phelps. *diags Eng & Min J* 102:387-90 Ag 26 '16
- Testing and application of hammer drills. B. F. Thilson. *diags Am Inst Min E Bul* 98:505-28 F '15; Excerpt (How the drill bit breaks the rocks). *Eng & Min J* 99:573-4 Mr 27 '15; Excerpts (Hammer drill records at the Franklin mines, New Jersey). *Eng & Contr* 46:163-4 Ag 15 '16; Discussion. *Am Inst Min E Bul* 101:1197-1201 My '15
- See also* Drilling and boring (earth and rocks)

Rock dust

General specifications for rock-dusting machinery. il diag Coal Age 9:672-3 Ap 15 '16; Same cond. (Preventing coal mine explosions with a spray of rock dust). Sci Am 114: 419 Ap 22 '16

Rock gas. See Mine gases**Rocks**

Analysis of slate and dike. E. E. White. Eng & Min J 101:433-4 Mr 4 '16
Geology and ore-deposition at Tonopah, Nevada. J. E. Spurr. il pls Econ Geol 10:713-69 D '15
Magmatic differentiation in effusive rocks. S. Powers and A. C. Lane. map Am Inst Min E Bul 110:535-48 F '16; Discussion. 113:893-5 My '16
Mineralization at Clifton-Morenci. L. E. Reber, jr. pls map Econ Geol 11:528-73 Ag '16
Petrographic microscope in analysis. F. E. Wright. Am Chem Soc J 38:1647-58 S '16
Petrography of the Mount Morgan mine, Queensland. W. E. Gaby. il map Am Inst Min E Bul 117:1725-44 S '16; Discussion. 120: 2164 D '16
Relation of mineral composition and rock structure to the physical properties of road materials. E. C. E. Lord. pls U S Agric Bul 348:1-26 '16; Summary (Stone for road material). Sci Am S 82:27 J1 8 '16
Results of physical tests of road-building rock. P. Hubbard and F. H. Jackson, jr. chart U S Agric Bul 370:1-100 '16

See also Geology; Limestone

Rocky Mountain coal mining institute

Conversational account of the summer meeting. F. W. Parsons. il Coal Age 10:66-71 J1 8 '16
4th regular meeting, Nov. 29. Coal Age 8:1013 D 18 '15

Rod, Divining. See Divining rod**Rods**

Watson-Stillman extruding machines. il Metal Ind n s 14:33 Ja '16

Roentgen rays. See X rays**Rogers, H. H.**

Country house of H. H. Rogers. J. T. Boyd, jr. il plans Arch Rec 39:1-23 Ja '16

Roll tickets. See Tickets**Roller bearings**

Energy savings with roller bearings. H. A. Johnson. Elec Ry J 47:1127 Je 17 '16
George automatic roller bearing. diags Automobile 34:189-90 Ja 27 '16; Horseless Age 37:162 F 15 '16; Iron Age 97:364 F 10 '16
Roller bearing takes thrust in novel way. diags Automobile 34:939 My 25 '16
Roller bearings applied to electric hoist. il diag Elec Ry J 48:690 S 30 '16
Roller bearings for railway use. R. H. Carhart. Elec Ry J 47:1127-8 Je 17 '16
Roller shoe for bridges prevents tipping. diags Eng N 76:647-8 O 5 '16

See also Bearings

Roller skating rinks

Concrete floors for roller skating. J. E. Freeman; L. C. Wason. Concrete 9:162 N '16

Rollers, Road. See Road rollers**Rolling**

Motion analysis of rolling automobile wheel. diag Automobile 35:192-3 Ag 3 '16; Correction. 282 Ag 17 '16

Rolling mills

Central station for power in steel mills. Power 44:500-1; Discussion. 501-2 O 3 '16
Characteristics of electric reversing mill. J. E. Jefferies. Elec W 68:951-2 N 11 '16
Cold-rolling strip steel. E. K. Hammond. il Mach 23:1-6 S '16; Abstract. Am Soc M E J 38:829 O '16
Desirable characteristics of mill drives. R. Tschentscher. il Elec R & W Elec'n 69:505-7 S 16 '16
Difficulties of rail manufacture. J. S. Unger. il Iron Tr R 58:1313-16 Je 15 '16
Electric alloy steel made on tonnage basis. il Iron Age 98:573-4 S 14 '16
Electric drive at Massillon, Ohio, mill. G. E. Stoltz. il Iron Tr R 58:93-5 Ja 6 '16

Electric drive for reversing rolling mills. W. Sykes and D. Hall. il diags Am Inst E E Pro 35:739-57 Je '16; Same cond. Iron Tr R 59:420-2 Ag 31 '16; Discussion. Am Inst E E Pro 35:1474-91 O '16

Electric drive for rolling mills. Sci Am 115:492 D 2 '16

Electric drive in Hess mill, Bridgetown, N. J. H. L. James. plan Iron Tr R 59:85 J1 13 '16

Electrical equipment of the Inland steel company's new mill, Indiana Harbor, to include a 15,000-horsepower reversing motor. il Elec R & W Elec'n 68:170-1 Ja 22 '16

Electrically driven reversing mill. Iron Age 98: 74-5 J1 13 '16

Electrically driven reversing rolling mills. W. Sykes. Iron Age 98:822 O 12 '16

Electrically driven tube mill of the Timken roller bearing co., Canton, O. il Iron Age 97:991-4 Ap 27 '16

Electricity in a steel rolling mill. W. L. Berry. il Elec R & W Elec'n 69:838-41 N 11 '16

Essential considerations when selecting steel mill motors. C. E. Bedell. Elec W 68:816 O 21 '16

How aluminum sheets are rolled. il Iron Tr R 59:423-4 Ag 31 '16

Inexpensive guards for blooming mills. il Iron Tr R 59:346 N 9 '16

Influence on rails of the method of blooming. Ry Age 59:1187 D 24 '15

Large uniflow engines for rolling mill. il diag Power 44:49-50 J1 11 '16

Largest tin plate plant in world, McKeesport, Pa. C. F. Williams. il plan Iron Tr R 58:53-6 Ja 6 '16

Lukens iron and steel co. builds world's largest plate mill. diags Iron Tr R 59:1041-4+ N 23 '16

Magnetic control for steel mills. G. E. Stack; H. I. Smith. il diags Gen Elec R 19:745-54, 834-41 S-O '16

Making flanged shapes. il Iron Age 98:190 J1 27 '16

Motor drive for operating steel rolling mill. W. Knight. Elec W 68:662-5 S 30 '16

Motor drive for steel mills. F. B. Crosby. il diags Gen Elec R 19:282-96 Ap '16

New bar mill of notable flexibility at Union rolling mill co.'s plant, Cleveland. il Iron Age 97:1060-3 My 4 '16

New Carnegie mill equipment at Bessemer, Pa. il Iron Age 97:185-7 Ja 20 '16

New rail mill of the Carnegie steel company at Bessemer, Pa. Ry Age 61:555-6 S 29 '16

New steel works at Lowellville, Ohio. il diags plan Iron Age 97:476-8 F 24 '16

Newest type of merchant bar mill at Duquesne, Pa. il Iron Tr R 58:62-4 Ja 6 '16

Power for steel mills. Iron Age 98:941-2 O 26 '16

Power in rolling steel. C. M. Sames. Iron Age 97:1338 Je 1 '16

Power required in rolling metals. C. E. Davies. diags Engineer 122:134-6 Ag 18 '16; Abstract. Iron Age 98:826 O 12 '16

Roll pressures in cold-rolling steel; abstract. W. K. Shepard and G. C. Gumer. Am Soc M E J 38:670 Ag '16

Sale of power to iron and steel mills. tables Elec R & W Elec'n 69:553-4 S 23 '16

Serving an 8500-hp. steel rolling-mill load. il diags Elec W 67:640-3 Mr 18 '16

Working efficiency of rolling steel. S. Cornell. Met & Chem Eng 15:177-84 Ag 15 '16

See also Iron industry and trade; Steel industry and trade; Steel works

Rolls (for textiles)

Shell rolls for bleaching, dyeing and finishing. diags Textile World 51:3729-+ Ag 26 '16

Rolls (machinery)

Roll hardening. C. L. Lucas. il diags Mach 22:835-8 Je '16

Roman antiquities

Old Roman city. D. A. Willey. il Arch Rec 40: 397-9 O '16

Romanesque architecture. See Architecture, Romanesque**Rome****Antiquities**

See Roman antiquities

Rome—Continued

Architecture

Balustrade and seats inclosing the forecourt of the Casino, Villa Borghese, Rome, E; G. Lawson, il diag Am Inst Arch J 4:460-1 N '16

Churches

San Giovanni in Oleo, Rome, W. L. Ward, il Am Inst Arch J 4:169-70 Ap '16

Historic houses

So-called house of Benvenuto Cellini in the Vicolo Cellini in Rome, E. Gugler, il Am Inst Arch J 4:341-5 Ag '16

Roofing

Candid statements about metal roofing, Metal Work 85:776 Je 9 '16

Canvass for sheet metal roofing, L. S. Bonbrake, diags Metal Work 86:397-8, 458-9 S 29, O 13 '16

Corrosion of tinned sheet copper; abstract, P. D. Merica, Met & Chem Eng 15:415-16 O 1 '16

Metal roofing observations and suggestions, il Metal Work 85:404-5 Mr 24 '16

Metal shingle avoids fire menace, Metal Work 85:641 My 12 '16

Million square feet of cement tile used for roofing, il diags Eng N 76:154-5 Jl 27 '16

Practical suggestions on slate roofing, Metal Work 85:780 Je 9 '16

Roofing of mine buildings, J. W. Latimer, Coal Age 10:226-7 Ag 5 '16

Steel-reinforced asphalt roof, Eng N 74:1264 D 30 '15

Tests of fire retardents, with special reference to the shingle roof; abstracts, H. von Schrenk and A. von Schrenk, Ry R 59:192-3 Ag 5 '16; Eng Rec 73:796 Je 17 '16

Tin-roofer's opportunity is ripe, Metal Work 85:580-1 Ap 28 '16

Roofs

Arch-truss roof for drill hall, Second regiment armory, Chicago, il diags Eng N 75:152-3 Ja 27 '16

Construction of Old English roofs, A. Keen, Bldg Age 38:49-50 Je; 65-6 Jl '16

Construction of roofs in Scotland, J. Y. Dunlop, diags Bldg Age 38:68-9 S '16

Dangerous timber roofs due to incompetence, H. D. Dewell, diag Eng N 76:515-16 S 14 '16

Details of roof-arch collapse in Atlanta, il diag Eng N 76:70-2 Jl 13 '16

Eighteenth century roof truss, diag Bldg Age 38:39-40 S '16

Estimating quantities in sheet metal work, diags Metal Work 86:235-7, 304-6, 524-6, 619-20 Ag 25, S 8, O 27, N 17 '16

Framing the bottom ends of rafters, diags Bldg Age 38:55 F '16

Framing with the steel square, Bldg Age 38:60-1 Ap '16

Large saving in roof steel by cantilevering purlins, J. P. Sartz, Eng N 74:1227 D 23 '15

Long-span concrete arched bents support roof of Chicago Hebrew institute, il diag Eng Rec 74:257-8 Ag 26 '16

Reinforced concrete roof trusses, A. M. Wolf, il diags Concrete 8:251-7; 9:13-18 Je-Jl '16

Roof framing with the steel square, D. P. Barry, Bldg Age 37:45-6 O '15; 38:45-6 Ja; 49-50 Mr '16

Roofing construction in New York, Metal Work 85:55-4 Ja 7 '16

Shingle roof, E; R. Hardy, Arch & Bldg 48:129-30 Ag '16

Shingles destroy metal valley, il diags Metal Work 86:398-9 S 29 '16

Springfield coliseum roof supported by 200-foot arches without tie rods, il diags Eng Rec 74:442-4 O 7 '16

Steel car-repair shed with cement-tile roof, il diags Eng N 76:474-5 S 7 '16

Steel square and roof framing, diags Bldg Age 38:35-8 S '16

Structural design of a peaked reinforced-concrete roof, J. N. Jensen, il diag Eng N 76:372-3 Ag 24 '16

Timber roof coverings, F; W. Foote, diags Eng & Min J 102:220 Jl 29 '16

Waterproofing cures expansion that wrecks roof, il diags Eng N 75:946-7 My 18 '16

See also Architecture; Car roofs; Domes; Girders; Gutters (roof); Rafters; Roofing; Scaffolding; Shingles; Shingling; Skylights; Steel construction; Strains and stresses; Trusses

Rope

Comparison of the weight and strength of Manila and galvanized wire hawsers, Eng & Contr 45:407 My 3 '16

Lateral, or side, friction of hoisting ropes, H. W. G. Holbaum, Coal Age 8:1010 D 18 '15

See also Cables; Manila rope; Rope driving; Wire rope

Rope, Wire. See Wire rope**Rope driving**

Efficiency of rope drives, W; Hirst, Power 44:427 S 19 '16; Same, Eng & Min J 102:679 O 7 '16

Failing-rope indicator; auto-trip and safety device, R. S. Handy, il Eng & Min J 101:186 Ja 22 '16

Rope vs. belt figures, S. F. Wilson, Power 43:669; 44:63 My 9, Jl 11 '16

Troublesome rope drive fixed, E; M. Keys, jr, diags Power 43:227 F 15 '16

See also Belting

Rosalia, Washington**Bridges**

Construction of two concrete arch bridges at Rosalia, J. F. Pinson, il diags Ry R 59:647-8 N 11 '16

Rosin. See Gums and resins**Rotary converters**

Advantages and disadvantages of 60-cycle commutating pole rotary converters, Elec W 68:1060-1 N 25 '16

Armature copper losses in rotary converters and double-current generators, L. H. A. Carr, Inst E E J 54:49-52 D 1 '15

Converter trouble cured by brush treatment, Elec Ry J 47:135 Ja 15 '16

Hot spots in synchronous converter armatures, A. E. Hanson and C. A. Corney, diags Elec W 68:807-8 O 21 '16

Renewal of collector rings on 400-kw. rotary converters, J. W. Brown, Elec Ry J 48:30 Jl 1 '16

Slipping a pole in a rotary converter by means of a field reversing switch, J. L. Yardley, diags Elec R & W Elec'n 69:336 Ag 19 '16

Synchronous converters, F. A. Annett and G. Fox, diags Power 44:545-8, 614-16, 685-7 O 17, 31, N 14 '16

Synchronous converters and motor-generator sets, J. L. Burnham, il diag Gen Elec R 19:457-63 Je '16

Rotation, Molecular. See Molecular rotation

Rotation of the plane of polarization. See Polarization (light)

Rotogravure

Process of rotogravure—and the advertising man's relation to it, il Inland Ptr 56:782-4 Mr '16

Roundhouses

New Lehigh Valley roundhouse at Sayre, Pa, il map Ry Age 60:841-2 Ap 14 '16; Same cond, Ry R 58:325 Mr 4 '16

See also Locomotive shops; Locomotive terminals; Railroads—Shops; Railroads—Terminals

Routing systems

Economizing footsteps, C. B. Thompson, diags Factory 17:528-30 N '16

Fitting today's plant to tomorrow's needs, F. H. LeMont, Factory 16:139-40, 234-7 F-Mr '16

Keeping track of work in process, H. A. Russell, Iron Age 98:6-9 Jl 6 '16

Mobilization of material and industrial resources, A. L. Humphrey, diags Eng Soc W Pa 32:409-11 Je '16; Same cond, Iron Age 98:234-5 Ag 3 '16

Paying bonuses to indirect labor, Iron Age 97:366-70 F 10 '16

Planning and efficiency system in Portland (Ore.) shops; adaptation of the Taylor system to electric railway repair shops, F. P. Maize, Elec Ry J 47:539-49 Mr 18 '16

Routing systems—Continued

- Production system in a 75-man shop; Waterbury tool co. W. E. Freeland. *il plan Iron Age* 98:871-6 O 19 '16
- Routing systems in the small shop. H. D. Wolcomb. *il Ry R* 58:642-5 My 6 '16
- Stock keeping in adding machine factory; Burroughs adding machine co., Detroit. F. L. Prentiss. *il Iron Age* 96:1347-51 D 9 '15

Rubber

- Characteristics of hard rubber. M. Shank. *Eng M* 51:602 J1 '16
- Chemical analysis of rubber goods. A. H. King. *diag Met & Chem Eng* 14:581-4 My 15 '16
- Dangers of rubber manufacture. *Sci Am S* 81:281 Ap 29 '16
- Determination of barium carbonate and barium sulphate in vulcanized rubber goods. J. B. Tuttle. *U S Bur Stand Tech Pa* 61:1-5 '16; Same. *J Ind & Eng Chem* 8:321-6 Ap '16
- Economic control of the electrical apparatus used in the rubber industry. H. E. Dexter. *il diags Gen Elec R* 19:630-7 J1 '16
- Guayule and industrial preparedness. A. H. King. *il Met & Chem Eng* 15:563-6 N 15 '16
- Method for the direct determination of the rubber in a compound. R. W. Belitt. *J Ind & Eng Chem* 8:326-7 Ap '16
- Poisons used in the rubber industry. *J Fr Inst* 180:728 D '15
- Reclaimed scrap vs. cheap new rubber. *Automobile* 33:1106-7 D 16 '15
- Reclaiming of rubber waste. A. H. King. *Met & Chem Eng* 14:309-11 Mr 15 '16
- Rubber industry. A. H. King. *il Met & Chem Eng* 14:23-9, 71-7 Ja 1-15 '16
- Rubber vulcanization accelerators. A. H. King. *Met & Chem Eng* 15:231-4 S 1 '16
- Testing of rubber goods. *il diags U S Bur Stand Circ* 38:1-89 '15; Excerpt (Sources and collection of rubber). *Sci Am S* 81:224 Ap 1 '16
- Testing plant materials for break-down voltage. H. A. Cozzens, jr. *diags Elec W* 67:598-9 Mr 11 '16
- Truth about colored rubber. W. Norris. *il Horseless Age* 37:453-5 Je 15 '16; Same. *Sci Am S* 82:187 S 16 '16
- Vulcanization experiments on plantation para rubber; the cause of variability and some contributing factors; abstract. B. J. Eaton and J. Grantham. *Am Soc M E J* 38:751 S '16
- World's crude rubber production for the last three years. *Horseless Age* 37:143 F 15 '16

Rubber, Artificial

- Present status of synthetic production. F. W. Hinrichsen. *Horseless Age* 36:145+ Ag 1 '15; Abstract. *Eng M* 50:613 Ja '16

Rubber belting. See Belting, Rubber**Rubber tires. See Tires (automobile)****Ruins. See European war—Destruction of property****Rumania**

- Strategic moves of the war. *map Sci Am* 115: 240, 368, 436+ S 9, O 21, N 11 '16

Rural architecture. See Cottages; Country houses**Rural credit. See Agricultural credit****Rural water supply. See Water supply, Rural****Rush orders. See Factory management—Schedules****Russell Sage foundation building**

- Russell Sage foundation building; plans of first, second to seventh and library stories. *il Arch & Bldg* 47:390-5 N '15

Russia

- See also* Geology—Russia; Railroads—Russia

Commerce

- British machinery and the Russian market. P. Gurewitch. *Engineer* 121:260-1, 298-9, 340-1, 370-1 Mr 24, Ap 7, 21, My 5 '16
- Great requirements of Russia; textile industries. W. Aisenman. *Am Ind* 17:27-31 N '16
- Great requirements of Russia; the national plans for development of railways, waterways and other national utilities. W. Aisenman. *Am Ind* 16:22-5 J1 '16

- Preparation for export trade with Russia. S. H. Bunnell. *Iron Age* 98:1184-5 N 23 '16
- Russian trade. *Engineer* 122:320-1 O 13 '16
- Russia's industrial requirements. W. Aisenman. *Am Ind* 16:26-8 Ap '16
- Russia's invitation to America. A. W. Behr. *Am Ind* 16:10 Ja '16
- Selling machinery and steel in Russia. A. J. Wolfe. *Iron Age* 97:1548-51 Je 29 '16
- Trade requirements of Russia. W. Aisenman. *Am Ind* 16:28-30 My '16

Industries and resources

- Awakening of Russia. N. Kouznetzoff. *il map Automobile* 35:568-70 O 5 '16
- Baku oil fields; discussion of paper by A. Adiassevich. L. G. Huntley. *Econ Geol* 11: 279-83 Ap '16
- Fuel in Russia. *Met & Chem Eng* 15:368 S 15 '16
- Gold production in Russia. *Eng & Min J* 102: 838 N 4 '16
- Review of present conditions in Russia. W. Aisenman. *Am Ind* 16:20-2+ D '15
- Russia's power resources. *Sci Am S* 81:19 Ja 8 '16

See also Mines and mineral resources—Russia; Petroleum—Russia

Public works

- Harbor and waterway improvement work in Russia. *Int Marine Eng* 21:436-7 O '16

Railroads

See Railroads—Russia

Russian cord

- Styles and designs in Russian cords. *il Textile World* 51:4343+ O 7 '16

Russian language

- Engineers and the Russian language. *Engineer* 121:211 Mr 10 '16

Rust. See Corrosion and anti-corrosives**S****Sabadilla**

- Military use of sabadilla in the manufacture of tear-producing gases. *Sci Am* 115:55 J1 15 '16

Sacramento, California

- Replanning and districting Sacramento. *il maps Eng N* 76:444-5 S 7 '16

Water supply

- Cost of hardness in water. *Munic J* 41:381-2 S 28 '16
- Filtered-water supply for Sacramento recommended in 660-page report. C. G. Hyde, G. H. Wilhelm and F. C. Miller. *Eng Rec* 74: 403-4 S 30 '16

Sacramento river

- Proposal to improve the Sacramento river. *Eng Rec* 73:323 Mr 4 '16

Safes

- Simulating the conditions of an actual fire in testing a record safe. *il Sci Am* 114:429 Ap 22 '16

See also Vaults

Safety at sea

- Saving sinking ships. *Sci Am S* 81:101 F 12 '16

See also Fires at sea; Fog signals; Naval architecture

Safety committees

- Pennsylvania safety plans. *Iron Age* 97:783-4 Mr 30 '16

Safety council, National. See National safety council**Safety devices and measures**

- Accident prevention and first aid. H. S. Salmon. *Coal Age* 8:767-8 N 6 '15
- Accident prevention during construction work. *Coal Age* 8:748 N 6 '15
- Accident prevention in the chemical industries. P. W. Keough. *Met & Chem Eng* 13: 731-4 O 15 '15; Excerpts. *Am Ind* 16:23-4 N '15; Excerpts. *Am Gas Light J* 104:124 F 21 '16

Safety devices and measures—Continued

- Attitude of the employer towards accident prevention and workmen's compensation; with discussion. W. H. Cameron. *Am Soc M E J* 38:287-9 Ap '16
- California engine safety orders. *Power* 44:256-7 Ag '16
- Caution most effective accident preventive. M. W. Alexander. *Textile World* 51:4135+ S 23 '16
- Economics of the safety movement. *Coal Age* 10:630-1 O 14 '16
- Element of safety in the construction and improvement of roads. *Il Good Roads n s* 12:107-10 S 2 '16
- 5th National safety congress, Detroit, Oct. 17-20. *Iron Age* 98:936-41 O 26 '16; *Iron Tr R* 59:841-5 O 26 '16; *Foundry* 44:477+ N '16
- Fifth National safety congress, electric railway section. *Elec Ry J* 48:930-4 O 28 '16
- Human factors in industrial safety. J. Calder. *Am Ind* 16:23-5 F '16
- Modern movement for safety from standpoint of manufacturer. M. W. Mix. *Am Soc M E J* 38:285-6 Ap '16; Same cond. *Iron Tr R* 58:1428 Je 29 '16; Discussion. *Am Soc M E J* 38:286-7 Ap '16
- National safety council convention, Detroit, Oct. 16-20. R. D. Hall. *Il Coal Age* 10:716-19, 749-50 O 28-N 4 '16
- Organizing for safety. *Am Ind* 16:supl-4 Ap; supl-4 My '16
- Reducing everyday accident risks. *Factory* 16:380+, 498+, 644+; 17:90+, 212+, 462+, 618+, 754+; Ap-Ag, O-D '16
- Republic rubber co. protects workers. *Il Automobile* 35:888-9 N 23 '16
- Rules for the safe handling of paints and oils. J. W. Gibbons. *diags Ry Mech Eng* 90:147-8 Mr '16
- Safety first. G. W. Grupp. *Metal Ind n s* 14:79 F '16
- Safety first at New England club. *Elec Ry J* 47:459-60 Mr 4 '16
- Safety in sand-blasting. J. Brinker. *Il Sci Am* 115:212 S 2 '16
- Safety in Westinghouse electric works. *Il Iron Age* 97:825 Ap 6 '16
- Safety nets in structural work. *Il Eng & Contr* 46:373 O 25 '16
- Safety plans that lower costs. *Il Factory* 16:124-6 F '16
- Safety rules for iron and steel plants. *Iron Age* 97:546-8 Mr 2 '16
- Safety work at Rochester. F. W. Fisher. *Il Gas Age* 38:140-2 Ag 1 '16
- Standardization of safety principles. C. M. Hansen. *diags plan Am Soc M E J* 38:277-81 Ap '16; Excerpts. *Am Ind* 17:supl-4 S '16; Discussion. *Am Soc M E J* 38:281-4 Ap '16
- Symposium on industrial safety at annual meeting of American society of mechanical engineers. *Iron Age* 96:1418-19, 1427-8 D 16 '15
- Today and tomorrow in fire and accident prevention. F. H. Wentworth; W. H. Cameron. *Factory* 17:402-3 O '16

Views of safety provisions in Massachusetts road work. *Il Good Roads n s* 12:148 O 7 '16

See also Air brakes; Boilers—Safety devices; Brakes; Coal mines and mining—Safety measures; Cranes, derricks, etc.—Safety devices; Electric engineering—Safety devices; Electric protective apparatus; Electric railroads—Safety devices; Goggles; Grinding machines—Safety devices; Lightning conductors; Machine shops—Safety devices; Machinery—Safety devices; Mine rescue work; Mining engineering—Safety measures; Railroads—Safety devices; Railroads—Signals; Respiratory apparatus; Safety at sea; Safety lamps; Safety valves; Steam engines—Safety devices; Steam shovels—Safety devices; Street railroads—Safety devices

Exhibitions

- First national exhibit of safety appliances, fifth annual safety congress, Detroit, Oct. 17-20. *Iron Tr R* 59:844-5 O 26 '16; *Foundry* 44:481 N '16
- Safety-first exhibit in New Haven public library. K. C. Walker. *Il Elec Ry J* 47:358 F 19 '16

Safety-first exposition at National museum, Washington, Feb. 21-26. *Munic J* 40:348-9 Mr 9 '16

Safety first; the federal government's exhibition train. *Il Sci Am* 114:616 Je 10 '16

Safety lamps

- Chance acetylene safety lamp. H. M. Chance. *Il Coal Age* 9:580-2 Ap 1 '16
- History of the safety lamp. F. W. Hardwick and L. T. O'Shea. *Sci Am S* 82:190-2 S 16 '16
- Illuminating power of safety lamps. W. M. Weigel. *Il Am Inst Min E Bul* 116:1349-59 Ag '16

See also Mine accidents

Safety lamps, Electric

- Cost of upkeep of electric safety cap lamps. *Il Coal Age* 9:453-4 Mr 11 '16
- Costs of operating electric cap lamps. *Coal Age* 10:17, 238-9 J1 1, Ag 5 '16
- Electric safety lamp. R. Koch. *Il Coal Age* 10:582-3 O 7 '16

Safety medals

- Award of the Anthony N. Brady safety medal. *Il Elec Ry J* 47:273 F 5 '16

Safety movement

- Training school for safety scouts. T. N. Henry. *Elec Ry J* 48:437-40 S 9 '16

Safety valves

- Analysis of marine safety valves; with suggestions for repairs and improvements. E. F. Maas. *diags Am Soc M E J* 38:994-6 D '16
- Design of steam safety valves. G. H. Clark. *Il diags Power* 44:32-5 J1 4 '16
- New type of steam safety valve. G. H. Clark. *diag Power* 43:63-4 Ja 11 '16
- Quincy market safety valve for ammonia compressors; abstract. F. L. Fairbanks. *Am Soc M E J* 38:97 Ja '16
- Safety valve for air chucks. L. Fay. *diags Mach* 22:797-8 My '16
- Safety valve for steam lines. *Il Iron Tr R* 58:1274 Je 8 '16
- Safety valve piping. *diag Locomotive* 30:247-9 O '15
- Steam safety valves. G. H. Clark. *Il diags Am Soc M E J* 38:376-84 My '16
- Testing safety valves at the U. S. naval engineering experiment station. J. L. Kauffman. *Il Power* 43:838-41 Je 13 '16
- Visits of inspector Brown. J. E. Terman. *diag Power* 44:349-51, 485-8, 587-9 S 5, O 3, 24 '16; Excerpt. (Safety-valve areas; chart). *Am Soc M E J* 38:1043 D '16
- Why safety-valve seats are beveled. C. H. Bromley. *Power* 43:793-5 Je 6 '16

See also Boiler explosions; Boilers; Steam engines; Valves

Sag

- Error in formula for sag. S. F. Wilson. *Power* 43:891 Je 20 '16; Same. *Eng & Min J* 102:188 J1 22 '16

Sage brush oil

- New flotation oil. M. Adams. *Am Inst Min E Bul* 117:1683-4 S '16; Discussion. 119:1897-9 N '16

New source of flotative agents. G. H. Clevenger. *Il Am Inst Min E Bul* 117:1685-92 S '16; Same. *Eng & Min J* 102:420-4 S 2 '16; Discussion. *Am Inst Min E Bul* 119:1897-9 N '16

Sails

- Aerodynamical experiments upon a yacht's mainsail. H. A. Everett. *Int Marine Eng* 20:540-1 D '15

St. Augustine, Florida**Sewerage**

- Sewer system without manholes or records. C. E. Henderson. *Il Munic J* 41:151-2 Ag 10 '16; Same cond. *Eng Rec* 74:599-600 N 11 '16

St. John's, Newfoundland**Water supply**

- Improvements to the water supply of St. John's, Newfoundland. F. F. Longley. *Il map Am Water Works Assn J* 3:415-22 Je '16; Same cond. (Water pressure raised and waste survey made). *Eng N* 75:452-3 Mr 9 '16; Excerpt (Approximate original methods and subsequent special device for measuring water waste). *Eng & Contr* 45:555-6 Je 21 '16

St. Louis, Missouri

River terminals and a boulevard system for St. Louis. J. Pitzman. Assn Eng Soc J 55: 184-93 N '15

Bridges

Pressed-steel floor forms left in place on two-mile bridge at St. Louis eliminate carpenters. *il* Eng Rec 73:760-2 Je 10 '16

Industries and resources

St. Louis—its place in the steel industry. *il* map Iron Age 98:877-80 O 19 '16

Railroads

St. Louis municipal railway and water front. map Eng N 75:62 Ja 13 '16

Rapid transit

United railways power situation. Elec Ry J 48: 531-2 S 23 '16

Sewerage

First tile sewers in St. Louis compared to brick. B. Moreel. *il* diags plan Eng N 76:1024-6 N 30 '16

Streets

Changes in new specifications for paving in St. Louis. Eng N 76:58-9 J1 13 '16
Sheet-pavement problems in St. Louis. J. L. Laxton. Eng Rec 74:505 O 21 '16
Traffic-census methods and some results. St. Louis. W. Holden. Eng N 76:832-4 N 2 '16
Vacuum street cleaning in St. Louis; abstracts of report. C. M. Talbert. *il* Munic J 41:317-19 S 14 '16; Munic Eng 51:145-8 O '16

Water supply

Clear drinking water from the Big Muddy. C. L. Edholm. *il* Metal Work 85:49-50 Ja 7 '16
Cost and use of chemicals at purification plant of St. Louis. Eng & Contr 46:318-19 O 11 '16
Experiences in tuning up St. Louis filters indicate what will not work. Eng Rec 74:532-3 O 28 '16
Water filters and typhoid at St. Louis, Mo. A. Potter. Eng N 76:1047 N 30 '16

Wharves

River terminals projected for St. Louis. S. W. Bowen. Eng N 76:216-17 Ag 3 '16

St. Louis & San Francisco railroad

St. Louis & San Francisco reorganization. Ry Age 60:64-5 Ja 14 '16

St. Louis, Associated engineering societies. See Associated engineering societies of St. Louis

St. Louis Southwestern railroad

Operating revenues and expenses, 1916. map Ry Age 61:931-2 N 24 '16

St. Paul, Minnesota**Water supply**

Copper sulphate treatment of St. Paul water supply. N. L. Huff. *il* diags Am Water Works Assn J 3:581-621 Je '16; Excerpts. Eng & Contr 46:39-40 J1 12 '16; Abstract. Eng Rec 73:804-5 Je 17 '16; Abstract. Eng N 76:104 J1 20 '16

St. Paul's, London

Dome of St. Paul's. R. F. Bach. *il* diags diags plans Brickb 25:275-80 N '16

St. Peter's, Rome

Dome of St. Peter's. R. F. Bach. *il* diags Brickb 25:249-54 O '16

Salamanders

Giant salamander of Japan. R. W. Shufeldt. *il* Sci Am S 82:156 S 2 '16

Salem, Massachusetts**Industries and resources**

Electricity in rebuilt Salem. *il* Elec W 67:541-2 Mr 4 '16

Water supply

Water supply of Salem, Mass. W. S. Johnson. *il* diags maps Boston Soc C E J 3:1-18 Ja '16; Excerpts. Eng & Contr 45:127-8 F 9 '16; Discussion. Boston Soc C E J 3:19-22 Ja '16

Sales

When seller lies down on contract for goods. E. J. Buckley. Metal Work 86:255 Ag 25 '16
See also Warehouse warrants

Sales departments

Sales versus operating department. D. T. Farnham. Eng M 50:921-5 Mr '16

Sales letters

Merchandising electrical appliances by mail. W. B. Parker. Elec R & W Elec'n 69:73 J1 8 '16

Salesmen and salesmanship

Breaking the ice; salesmen's reports. R. Ellis. Inland Ptr 57:321-4 Je '16
Business building for electrical contractors. G. W. Hill. Elec R & W Elec'n 68:292-3 F 12 '16
Compensating salesmen. Am Gas Light J 105: 185 S 18 '16
Creating loyalty in salesmen; Bowser company method. S. B. Bechtel. Horseless Age 38:293-5+ N 1 '16
Curing staleness in salesmen. A. Macauley. Horseless Age 38:111-12+ Ag 15 '16
Experience in paying salesmen. G. Williams. Gas Age 38:533-4 N 15 '16
How to guard against loss of sales. J. S. Vogel. Elec R & W Elec'n 68:989 My 27 '16
Industrial preparedness for peace; the human side of salesmanship. M. Chipman. Sci Am 114:300+ Mr 18 '16
Items essential for developing sales. H. W. Symond. Metal Work 85:142 Ja 21 '16
Manager and the training of company employees. L. Galloway. Elec W 68:1012 N 18 '16
Methods of remunerating salesmen. Q. W. Wales. Metal Work 86:251 Ag 25 '16
The other half. R. Ellis. Inland Ptr 58:35-9 O '16
Pointers for building up an electrical supply business. J. S. Vogel. Elec R & W Elec'n 68: 601-2 Ap 1 '16
Quotas and their use in salesmanship. F. H. Dodge. Automobile 35:200-1 Ag 3 '16
Sales talks. W. R. Marshall. Dom Eng 74: 41-2, 103-4, 75:72-4, 166-7, 299-300, 398-9 Ja 8, 22, Ap 15, My 6, Je 3, 24 '16
Selecting the truck salesman. R. W. Hutchinson, jr. *il* Horseless Age 38:184-5 S 15 '16
Selection, training and compensation of industrial fuel salesmen. G. M. Karshner. Am Gas Light J 104:406 Je 26 '16
Selling printing by modern intensive methods. C. C. Casey. Inland Ptr 58:44-7 O '16
Six principles of scientific salesmanship. E. S. Lewis. Eng M 51:837-42; 52:10-15, 225-30, 289-98 S-D '16
Talks to central-station power salesmen. C. H. Stevens. Elec R & W Elec'n 68:508-10, 853-5 Mr 18, My 13 '16
Test to gage both the salesman and his territory. Elec W 67:551-2 Mr 4 '16
What salesmanship is. C. C. Casey. Horseless Age 38:91-2 Ag 1 '16
See also Advertising; Business; Sales department

Bibliography

List of references on the cost of selling. H. H. B. Meyer. Special Libraries 7:47-9 Mr '16

Salmon industry

Salmon industry accounting. E. J. Miner. J Account 22:361-78 N '16

Salt

Artificial rock salt from hydraulic presses. F. B. McMillin. *il* Sci Am 115:455 N 18 '16
Potash in Salduro salt deposit. H. S. Gale. Eng & Min J 102:780-2 O 28 '16
Salt-wells of Tzuliutsing, China. H. K. Richardson. *il* Sci Am S 82:324-5, 328-9 N 18 '16
Taking salt from the sea with modern methods. P. H. Dowling. *il* Sci Am 114:119 Ja 29 '16

Salt Lake City, Utah**Lighting**

Salt Lake City's splendid new street lighting. *il* Elec R & W Elec'n 69:626-7 O 7 '16

Public works

Municipal improvements in Salt Lake City. Munic Eng 50:161 Ap '16

Salt Lake City, Utah—Continued**Sewerage**

Electrically driven machinery in sewer construction. B. W. Mendenhall. *il Eng & Contr* 45:16-18. Ja 5 '16; Same cond. *Elec W* 66: 1319-21 D 11 '15; Same cond. *Munic Eng* 50: 91-3 Mr '16

Gantry cranes work on sewer at Salt Lake City. *il Eng N* 76:97 J1 20 '16

Water supply

New dam increases Salt Lake City water supply; cost data. *il Eng Rec* 74:314-15 S 9 '16

Salt mines and mining

British subsidences. *il Coal Age* 10:642-4 O 14 '16

Saltpeter

Chinese saltpeter. *Eng & Min J* 102:902 N 18 '16

Saltpeter, Chile

Chilean nitrate industry. E. Cuevas. *Eng N* 75:44 Ja 6 '16; Same. *Met & Chem Eng* 14: 426-7 Ap 15 '16

Exploitation of Chilean mines. B. L. Miller and J. T. Singewald. *Eng & Min J* 102:292 Ag 12 '16

Genesis of the Chilean nitrate deposits. J. T. Singewald, jr., and B. L. Miller. *bibliog Econ Geol* 11:103-14 Mr '16

Statistics of Chilean nitrate industry. *Met & Chem Eng* 15:328 S 15 '16

Salvador**Industries and resources**

Central America as an export field. G. Harris and others. *U S Bur For & Dom Com* 113: 116-34 '16

Salvage

Raising the submarine F-4. J. A. Furer. *il plan Eng N* 74:880-4 N 4 '15; *Abstract. Eng M* 50:614-15 Ja '16

Recovering stranded ships after Galveston storm. E. D. Thompson. *il Eng N* 75:710-11 Ap 13 '16

Refloating of the Hendonhall. R. G. Skerrett. *il Int Marine Eng* 21:26-7 Ja '16

Salvage of the submarine F-4. J. A. Furer. *il Sci Am* 113:336-7+ O 16 '15; *Abstract. Int Marine Eng* 21:37-8 Ja '16

Salvaging a flooded pumping plant in California. R. A. Silent. *il Eng N* 76:125-7 J1 20 '16

Salvaging the U. S. collier Hector. *il diag Sci Am* 115:414 N 4 '16

Unparalleled salvage undertaking floating a wrecked vessel on her side. R. G. Skerrett. *il diag Sci Am* 115:262-3 S 16 '16

Saman

Saman or rain tree. *il Am For* 22:424-5 J1 '16

Sampling

Standard methods of sampling and analysis and standard samples. W. F. Hillebrand. *J Ind & Eng Chem* 8:466-9 My '16

See also Coal sampling; Gas sampling; Ore pulp—Sampling; Ore sampling; Soil sampling

Sampling of liquids. See Liquids—Sampling**San Antonio, Texas****Railroads**

New terminal is under way at San Antonio. D. A. Tomlinson. *map Eng Rec* 74:473 O 14 '16

Sewerage

Successful sewage disposal by broad irrigation. T. Bartlett. *il Eng N* 76:586-7 S 28 '16

Streets

Paving in San Antonio, Texas. E. A. Kingsley. *il Munic J* 40:131-5 F 3 '16

Street widening in San Antonio. E. A. Kingsley. *il Munic J* 40:263-4 F 24 '16

Sand

Effect of iron and calcium on concrete sand. T. Saville. *il Eng N* 74:1242 D 23 '15

Experiments to determine frost action on sand. C. A. Ferry. *Eng & Contr* 46:431 N 15 '16

Mammoth sand and gravel plant employs unusual methods. W. B. Conant. *il Concrete* 9:62-3 Ag '16

Modern sand and gravel plant formally opened at Marlborough, N. Y. *il Eng N* 76:470 S 7 '16

Sand dredged from river for road work. *il Eng Rec* 74:265-6 Ag 26 '16

Theory and tests presented for design of sand boxes to lower arch centers. F. P. McKibben. *il diag Eng Rec* 74:530-2 O 28 '16; *Correction. Eng Rec* 74:630 N 18 '16

Uniformity coefficient a misnomer. H. Miller. *Eng Rec* 74:599 N 11 '16

Water lifts sand to filters from railway cars. W. Gore. *il diag Eng N* 76:803-4 O 26 '16

Weight of sand and gravel per cubic yard. *Concrete* 9:81 S '16

See also Concrete; Concrete—Aggregate; Mortar; Sand blast; Sand washing

Testing

Economic side of sand testing. H. H. Scofield. *Eng Rec* 73:183, 330-1 F 5, Mr 4 '16

Economic side of sand testing. W. B. Fuller. *Eng Rec* 73:260 F 19 '16

Gravel as an aggregate for concrete. H. H. Scofield and C. C. Brown. *Munic Eng* 50: 135-7 Ap '16

Quality of concrete controlled by tests of sand. C. M. Chapman and N. C. Johnson. *il Eng Rec* 71:801-4 Je 26 '15; Same. *Sibley J* 30:142-8 Ja '16

Safe concrete demands knowledge of nature of sands. C. M. Chapman and N. C. Johnson. *il Eng Rec* 71:771-4 Je 19 '15; Same. *Sibley J* 30:105-11 D '15

Sand for concrete. E. L. Conwell. *Eng Rec* 72:734 D 11 '15

Sand tests for road work. *Munic J* 39:875 D 9 '15

Universal sand tester. *il Munic J* 40:219 F 10 '16

Sand, Foundry

Can foundry sand be recovered economically? H. B. Swan. *Foundry* 44:463-4 N '16; *Abstract. Iron Age* 98:640-1 S 21 '16

Grinding and mixing sand. *il Iron Age* 97:843 Ap 6 '16

Mining Albany molding sand. D. H. Newland. *il map Foundry* 44:107-10 Mr '16

Recent improvements in foundry operations. T. D. West. *il diags Foundry* 44:29-34 Ja '16

Reclaiming molding sand in an eastern plant. W. M. Saunders and H. B. Hanley. *Foundry* 44:218-19 Je '16

Reclaiming waste molding sand. *il plan Iron Age* 98:505 S 7 '16

Reclamation of waste foundry sand. H. M. Lane. *Foundry* 44:464 N '16; *Abstract. Iron Age* 98:827 O 12 '16

Selecting a molding sand for various metals. C. P. Karr. *Iron Age* 97:901 Ap 13 '16

Standardizing molding sands. *Metal Ind n s* 14:249 Je '16

Sand blast

Hand sand blast machine. *il Metal Ind n s* 13:516 D '15

Helmets worn as a protection against dangerous dusts. *il Sci Am* 114:617 Je 10 '16

How sand-blast is used in modern foundries. H. C. Estep. *il Foundry* 44:349-63 S '16

Pangborn rotary sandblast machine. *il Mach* 22:348-9 D '15; *Foundry* 43:511 D '15; *Iron Tr R* 57:1177 D 16 '15; *Metal Ind n s* 14:35 Ja '16

Results when cleaning condenser tubes with sand blast. *diag Elec W* 68:228 J1 29 '16

Safety in sand-blasting. J. Brinker. *il Sci Am* 115:212 S 2 '16

Sand blasting makes scrap glass usable. *il Elec Ry J* 48:986 N 4 '16

Suction type of sand-blast nozzle. *il Iron Age* 98:399 Ag 24 '16

Sand drying

Economical sand dryer of the Martin brick machine mfg. co. *il Elec Ry J* 47:326 F 12 '16

Improved sand drying and handling apparatus. *il diag Ry R* 58:64 Ja 8 '16

Oil-burning sand dryer. F. G. Lister. *diags Elec Ry J* 47:503-4 Mr 11 '16

Rapid portable sand and stone drier. *il Good Roads n s* 11:175-6 Ap 1 '16; *Munic J* 40:285-6 F 24 '16

Sand drying stove. *il Metal Ind n s* 14:34 Ja '16

Sand handling

Design and construction features of a sand and gravel storage plant, Louisville, Ky. G. D. Crain, jr. il diags Concrete 8:219-21 My '16

Sand washing

Continuous sand washer cleans 250 yds. a day. il diag Concrete 9:71 Ag '16
Methods of washing slow sand filters. J. Gaub. il diags Am Water Works Assn J 2:596-611 D '15

Sand and gravel washing and grading plant, Lynnfield, Mass. C. B. Breed. il diag Eng N 74:1204-5 D 23 '15

Sandalwood

Sandalwood, its assay, yield of oil, and changes in the oil during distillation. C. H. Briggs. J Ind & Eng Chem 8:428-9 My '16

San Diego, California**Floods**

Flood damage in San Diego. il Munic J 40:332-3 Mr 9 '16

Public works

Municipal shops at San Diego. F. M. Lockwood. il Eng N 76:548-9 S 21 '16

Water supply

Arched gravity dams to be built at Lower Otay and Barrett sites. M. M. O'Shaughnessy. diag Eng Rec 74:195-6 Ag 12 '16
Otay rock-fill dam failure. C. W. Baker. il map Eng N 75:236-9 F 3 '16
Two new dams proposed for San Diego water-supply. Eng N 76:231-2 Ag 3 '16

Sandpaper

Side lights on wood finishing; grades of sandpaper. Bldg Age 38:29-30 N '16

Sandpapering

Convenient sandpapering tools for the operating electrician. C. L. Freysinger. il Elec R & W Elec'n 69:895 N '16

San Francisco, California

San Francisco civic center. J. Reid, jr. il plan Am Inst Arch J 4:334-6 Ag '16
San Francisco's civic center. il plan Eng N 75:1222-3 Je 29 '16

Bridges

Planning for a bridge across San Francisco bay. il Eng N 76:426 Ag 31 '16

Lighting

Downtown lighting system for San Francisco. W. D. Ryan. il map Elec W 68:457-9 S 2 '16

Panama-Pacific international exposition

Awards at Panama-Pacific exposition. Iron Age 96:1368 D 9 '15
Panama-Pacific exposition. F. R. Low. il diags Power 42:180-4, 225-9, 261-6, 290-3, 341-3, 374-7, 444-7, 586-8, 730-3, 784-6; 43:40-2 Ag 10-S 28, O 26, N 23, D 7 '15, Ja 11 '16

See also Exhibition buildings

Lighting and heating

Heating Horticultural palace at exposition. il plans Metal Work 85:158-9 Ja 28 '16
Illumination of the Panama-Pacific international exposition. W. D. Ryan. il Illum Eng Soc 11:629-39 no 6 '16

Panama-Pacific exposition; committee report. Illum Eng Soc 10:534-7 no 7 '15; Same. Illum Engr 9:105-6 Mr '16; Same cond. Am Gas Light J 103:276 N 1 '15

Water supply

Good engineering in solving the emergency water supply problem of the Panama Pacific international exposition. E. C. Eaton. Eng & Contr 44:427-9 D 1 '15

Wooden filters prove economical for temporary exposition water supply. E. C. Eaton. il diags plan Eng Rec 72:748-51 D 18 '15

Wrecking

Dynamite proves effective in wrecking of Panama-Pacific exposition. il Eng Rec 74:203-4 Ag 12 '16

Public works

Converting a municipal liability into an asset; road up Twin Peaks. M. Woolley. il Sci Am 115:275 S 23 '16

San Francisco shore protection near completion. il Eng N 76:543-4 S 21 '16
San Francisco will protect beach with bleachers. il diag Eng Rec 74:560-1 N 4 '16

Rapid transit

Methods and progress on Twin Peaks tunnel. A. J. Cleary. il diag Eng N 76:636-7 O 5 '16
Steep grade on San Francisco street railway overcome. plans Eng N 75:641 Ap 6 '16

Streets

Heavy street grades cut down in San Francisco. il diag Eng Rec 74:556 N 4 '16
New boulevard overlooking San Francisco. il Eng N 76:504-5 S 14 '16
Reducing hillside street grade from 29 to 16 per cent. plan Eng N 75:12-13 Ja 6 '16

Water supply

Hetch Hetchy water program. M. M. O'Shaughnessy. Eng N 75:1247-8 Je 29 '16
Three million yards being pumped to build Calaveras dam, 240 feet high, by hydraulic method. G. A. Elliott. il diag Eng Rec 74:220-2 Ag 19 '16
Work on Hetch Hetchy water project begins. il Eng Rec 73:16-17 Ja 1 '16

Sangallo, Giuliano Da, 1445-1516

Portrait. Brickb 25:134a Je '16

Sanitary chemistry

See also Air pollution; Refuse and refuse disposal; Sewage disposal; Smoke prevention; Water—Analysis; Water purification

Sanitary engineering

Sanitary engineering in 1915. Engineer 121:29-31 Ja 14 '16

See also Ash collection; Dust removal; Filters and filtration; Heating; Plumbing; Public comfort stations; Refuse and refuse disposal; Refuse collection; Sanitation; Sewage disposal; Sewerage; Smoke prevention; Street cleaning; Ventilation; Water pollution; Water purification; Water supply; Water supply engineering

Sanitary engineering, American society of. See American society of sanitary engineering

Sanitary engineering, New Jersey society of. See New Jersey society of sanitary engineering

Sanitary engineers, Indiana society of. See Indiana society of sanitary engineers

Sanitary laws. See Public health laws

Sanitation

Activity for sanitation in Wisconsin. F. R. King. Metal Work 85:715 My 26 '16
American public health association 44th annual convention. Eng N 76:853 N 2 '16

Efficient plumbing systems for small houses. plans Metal Work 84:839-41 D 31 '15

Element of chance in sanitation. G. C. Whipple. J Fr Inst 182:37-59, 205-27 Jl-Ag '16

Policemen as sanitary inspectors. Dom Eng 73:334 D 11 '15

Sanitary equipment of New Jersey tenements. il Metal Work 85:190-2 F 4 '16

Sanitary laws an indication of a people's real culture and progress. E. R. Pritchard. Dom Eng 77:324-5 N 18 '16

Typhoid toll. G. A. Johnson. tables Am Water Works Assn J 3:249-326 Je '16; Excerpts. Eng Rec 73:803-4 Je 17 '16

See also Air washing; Ash collection; Camp sanitation; Disinfection and disinfectants; Dust removal; Factory sanitation; Plumbing; Public health; Refuse and refuse disposal; Sanitary engineering; School hygiene; Sewage disposal; Sewerage; Smoke prevention; Ventilation; Water purification; Water supply

Sanmichele, Michele, 1484-1559

Portrait. Brickb 25:160a Jl '16

Sansovino, Jacopo Tatti, 1477-1570

Portrait. Brickb 25:80a Ap '16

Santa Barbara, California**Water supply**

Santa Barbara has subterranean storage reservoir. Eng Rec 73:115 Ja 22 '16

Santa Fe railroad. See Atchison, Topeka & Santa Fe railroad

Santa Gertrudis mine, Mexico

Mining and milling practice at Santa Gertrudis. H. Rose. diags plan Am Inst Min E Bul 116:1295-32 Ag '16; Same. Eng & Min J 102:247-53, 263-4, 371-6 Ag 5, 26 '16; Discussion. Am Inst Min E Bul 120:2197-200 D '16

Santa Monica, California**Architecture**

High school group, Santa Monica, Cal.; views and plans. Brickb 25:pl 37-9 Mr '16

Sap

Testing the uprush of sap. S. L. Bastin. il Sci Am 114:643 Je 17 '16

Sardinia**Industries and resources**

Magnetic separation in Sardinia. C. W. Wright. il diags Eng & Min J 100:911-13 D 4 '15

Savannah, Georgia**Wharves**

Construction features of the substructure for the Ocean steamship co.'s terminal at Savannah. il Eng & Contr 45:11-12 Ja 5 '16

Saving

Encouraging thrift among employees. R. F. Corry. Am Ind 17:12 N '16
Savings system for factories. R. F. Corry. Am Ind 16:29-31 Jl '16

Saw mills. See Sawmills**Sawdust**

By-products of the lumber industry. H. K. Benson. diag U S Bur For & Dom Com 110:56-9 '16; Same (Ethyl alcohol from sawdust). Sci Am S 82:352 N 25 '16
See also Wood flour; Wood waste

Sawmills

Conditions under which Oregon company burns wood. il Elec W 68:170-3 Jl 22 '16
Directory of American sawmills. J. C. Nellis and A. H. Pierson. U S Bur For & Dom Com misc ser 27:1-260 '15
Long log and block conveyor at Hinckley dam. S. Reswick. il diag Eng N 75:552-3 Mr 23 '16
Motor drive of the small sawmill. A. A. Laughton. il Elec W 67:268-9 Ja 29 '16

Saws

Adaptable motor-driven saw rig. il Concrete Cem 7:218 D '15
Band saw filing clamp. M. E. Duggan. diag Foundry 44:115 Mr '16
Bench filing and hack saw machine. il Iron Age 97:363 F 10 '16
Brushing chips out of cold saws. H. C. Atkins. il Mach 22:423 Ja '16
Gasoline-operated drag-saw for the cutting of timber. il Sci Am 115:246 S 9 '16
Hack saw machine for large rounds. il Iron Age 97:480 F 24 '16
Manufacture of circular metal saws. F. M. Shaw. il diags Mach 23:11-14 S '16
Manufacture of hacksaw blades. F. M. Shaw. il diags Mach 22:960-3 Jl '16
Oliver sawing, filing and lapping machine. il Mach 22:345 D '15
Peerless hack saw machine with new features. il Iron Age 97:304-5 F 3 '16; Mach 22:531-2 F '16; Iron Tr R 58:490-1 Mr 2 '16
Portable air driven saw for car repairs. W. E. Johnson. diag Ry R 59:292 Ag 26 '16
Reclaimed rail saw. E. T. Spidy. il diag Ry Mech Eng 90:359-60 Jl '16
Small size cold metal sawing machine. il Iron Age 98:827 O 12 '16; Iron Tr R 59:895 N 2 '16
Suggestions in mechanisms; what can be done with a circular saw. S. D. Mott. diags Sci Am S 80:380 D 11 '15
Test of hack saw blades. il Metal Ind n s 14:21 Ja '16
Tree-felling saw in operation. il diags Engineer 122:104 Ag 4 '16
Universal sawing machine for shapes. il Iron Age 96:1409 D 16 '15
Van Auken duplex high-speed hack saw machine. il Iron Age 96:1287 D 2 '15; Iron Tr R 57:1288 D 30 '15; Mach 22:344 D '15
Vulcan cold metal saw. il Iron Age 97:1487 Je 22 '16; Mach 22:993-4 Jl '16

Scaffolding

Cornice runways for swinging scaffolds from buildings. diags Eng N 75:851 My 4 '16
Hitch with sash cord prevents scaffolds from falling. il Eng Rec 72:736 D 11 '15
Light swinging scaffold aids finishing of underside of viaduct. R. C. Hardman. diag Eng Rec 73:223-4 F 12 '16
Portable scaffold for car repair tracks. E. W. Hartough. il Ry Mech Eng 90:237 My '16
Safety device for swinging scaffolds. il Eng & Contr 45:158 F 16 '16
Safety scaffolds for buildings. il Eng N 75:376 F 24 '16
Scaffold bracket for asphalt shingle roofs. W. M. Spalding. diags Bldg Age 38:59 Ap '16
Trolley tracks for cleaners' scaffolds on buildings. il Eng Rec 73:457 Ap 1 '16
See also Shoring and underpinning

Scagliola

Applying scagliola to cement. E. McCullough. Bldg Age 38:54-5 D '16

Scales

Automatic scale for shells. il Engineer 120:486 N 19 '15
Coal weighing machinery for receiving and feeding in power plants. il Munic J 40:120-1 Ja 27 '16
Locomotive weighing scales. A. W. Thompson. il diag Gen Elec R 19:1119-25 D '16
Railroad circular on master scales. Ry R 59:368 S 16 '16
Richard's specific gravity scale. M. E. Burgett. Metal Ind n s 14:390 S '16
Weighing-scales. F. J. Schlinck. diags Mach 22:381-5 Ja '16
See also Balances

Scales, Track. See Track scales**Scenic railways**

Over the whirlpool by aerial cable; aerial scenic railway recently completed at Niagara falls. C. W. Person. il Sci Am 114:330+ Mr 25 '16

Scheelite

Wolframite and scheelite at Leadville, Colorado. R. S. Fitch and G. F. Loughlin. Econ Geol 11:30-6 Ja '16

Schenectady, New York**Sewerage**

Sewage pumping in Schenectady. Munic J 40:334 Mr 9 '16
Sewerage system at the General electric company's works. P. G. Koch. il diag Gen Elec R 19:156-8 F '16; Same cond. Eng Rec 74:206 Ag 12 '16; Same cond. Metal Work 86:395-6 S 29 '16

Water supply

Improving Schenectady's water works. il diags Munic J 40:575-8, 612 Ap 27-My 4 '16

Schieffelin, Schuyler

House of Schuyler Schieffelin, esq., at Monroe, N. Y. J. T. Boyd, jr. il plans Arch Rec 40:30-43 Jl '16

Schneider, Charles Conrad, 1843-1916

Sketch. por Eng Rec 73:95 Ja 15 '16
Sketch. P. L. Wolfel. por Eng N 75:90-1 Ja 13 '16

Scholarships and fellowships

Joseph T. Ryerson & son scholarships American railway master mechanics' association. Ry R 58:566-8 Ap 22 '16

School architecture. See Normal schools; Schoolhouses**School buildings. See Schoolhouses****School children, Free dentistry for**

Boston's care of school children's teeth. il Sci Am 115:370+ O 21 '16

School grounds

School grounds in coal towns. K. B. Lohman. il plan Coal Age 9:423-4 Mr 4 '16

School houses. See Schoolhouses**School hygiene**

Improving the physique of Americans. Sci Am S 82:95-6 Ag 5 '16

School-spread of contagious disease. M. Solis-Cohen. Sci Am S 81:134-5 F 26 '16

School hygiene—Continued

School water supply and waste disposal, il diag
Metal Work 86:493-4 O 20 '16

See also Open-air schools; Schoolhouses—
Heating and ventilation

School laws. *See* Schoolhouses—Laws and regulations

School lighting. *See* Schoolhouses—Lighting

School ships. *See* Schoolships

Schoolhouses

Construction of a fireproof concrete school house, Torrington, Wyo., at low cost, il diag plans Concrete 9:141-3 N '16

District school near Spokane, Wash., Whitehouse & Price, architects, il plans Arch Rec 39:282-4, 297-8 Mr '16

Fire protection and the schools, plans Arch Rec 39:390-3 Ap '16

Grade schoolhouse, Framingham, Mass.; views and plans, Brickb 25:pl 42-3 Mr '16

High school, Binghamton, N. Y.; views, Arch. & Bldg 48:14, pl 3 Ja '16

High school; domestic science, commercial, and manual arts departments, and special rooms, W. H. Kilham, il plans Brickb 25:57-61 Mr '16

High school group, Santa Monica, Cal.; views and plans, Brickb 25:pl 37-9 Mr '16

High school of commerce, Springfield, Mass.; views and plans, Brickb 25:pl 40-1 Mr '16

High school; planning and equipment of the science department, W. H. Kilham, il plans Brickb 25:27-30 F '16

Philadelphia adopts one-story school building policy, C. R. Rosenberg, jr, Arch Rec 40:285 S '16

Planning of trade and industrial school buildings, L. Gustafson, plan Brickb 25:135-8, 161-6 Je-Jl '16

School building as a social center, D. H. Perkins, il plans Brickb 24:293-4; 25:1-7 D '15-Ja '16

School power plant, H. L. Alt, plans Brickb 25:99-101 Ap '16

South Park high school, Buffalo, N. Y.; views and plans, Arch & Bldg 47:417-20 N '15

Successful centralization of township schools of West Virginia, C. E. Owen, il plans map Coal Age 9:601-4 Ap 1 '16

See also Normal schools; Open-air schools

Electric equipment

Electric service for Carl Schurz high school, Chicago, C. L. Vestal, il Elec R & W Elec'n 67:1024-6 D 4 '15

Heating and ventilation

Burley high school, Idaho, electric heating, il plans Heat & Ven 13:13-17 Ja '16

Burley high school, Idaho, electrically heated, F. E. Ware, il plan Elec W 67:204-5 Ja 22 '16; Abstract, Eng M 50:948 Mr '16

Burley school, Idaho, is electrically heated, Elec R & W Elec'n 68:98 Ja 15 '16

Defective school heating system, diag Dom Eng 74:43-4 Ja 8 '16

Example of unit classroom heating and ventilating, plan Heat & Ven 13:55 Je '16

Experiment in ventilating a school room, il Am Soc Heat & V E 21:563-73 '15; Same, Dom Eng 73:38-41 O 9 '15; Discussion, Am Soc Heat & V E 21:573-7 '15

Fan furnace system in country school, il plans Metal Work 86:203-5 Ag 13 '16

Heating and ventilating a school by electricity, Rupert, Idaho, il plans Metal Work 85:501-1 Ap 14 '16

Heating and ventilating plant, Waite high school, Toledo, O. S. R. Lewis, Heat & Ven 13:34 F '16

Heating system in the new Cicero-Stickney high school at Cicero, Ill, il plan Dom Eng 76:354-6 S 9 '16

Mechanical equipment in a New York school, F. G. McCann, il diag plan Metal Work 86:135-7, 244-6, 310-12, 400-3, 461-2, 529-30, 585-6 Ag 4, 25, S 8, 29, O 13, 27, N 10 '16

Natural ventilation in the Federal Hill school, Bristol, Conn, H. L. Alt, il diag plans Heat & Ven 13:11-18 Je '16

New heating and ventilating requirements for public school buildings in Illinois, Heat & Ven 13:46-7 F '16

New York school heating practice, F. G. McCann, il diag Heat & Ven 13:13-26 S '16

Positive fresh warm-air system for school at Canton, Pa, il plans Metal Work 85:815-18 Je 16 '16

Progress in natural school lighting, Illum Engr 9:275-6 S '16

Proposed compulsory requirements for natural and mechanical ventilation of school buildings, C. F. Midgley, Heat & Ven 13:53-4 My '16

Recent tests on recirculation of washed air, G. L. Larson, il Metal Work 84:675-7+ N 26 '15; Conclusions, Heat & Ven 13:36-7 F '16

Recirculating of air in a schoolroom in Minneapolis, F. Bass, Am Soc Heat & V E 21:109-16 '15; Same cond, Heat & Ven 12:27-30 Mr '15; Discussion, Am Soc Heat & V E 21:116-25 '15

School at Lacon, Ill., warmed by battery of furnaces, il plan Metal Work 86:238-9 Ag 25 '16

Scottish methods of heating school houses, plans Metal Work 85:854-5 Je 23 '16

Standard details of heating and ventilating work, F. G. McCann, diag plans Metal Work 81:31-3, 125-6, 234-5, 302-3, 363-4, 421-4, 494, 511+, 606-7, 82:273-4, 460, 706-7; 83:149-50, 281-2; 84:458, 551, 743, 797+; 85:375, 542, 644, 740; 86:42, 113, 339+, 614 Ja 2, 16, F 6, 20, Mr 6, 20, Ap 3-10, My 1, S 4, O 2, N 27 '14, Ja 22, F 19, O 8, 29, D 10, 24 '15, Mr 17, Ap 21, My 12, Je 2, Jl 14, 28, S 15, N 17 '16

Survey of operating costs in thirteen school buildings, J. M. Cushman, Heat & Ven 13:25-34 N '16

Test of air conditions in Joseph Sears school, Kenilworth, Ill, E. V. Hill, il plan Heat & Ven 13:20-9 My '16

Theory and practice in warm-air heating, diag plans Metal Work 85:347-9 Mr 10 '16

Ventilating equipment of boys' high school, Louisville, Ky, il diag Metal Work 84:736-7 D 10 '15

Ventilating system of Wisconsin schoolhouse, W. H. James, plans Metal Work 84:761-2 D 17 '15

Ventilation in school rooms, S. G. Dixon, Metal Work 84:742 D 10 '15

Warm-air heating system, plan Metal Work 85:237 F 25 '16

Laws and regulations

Illinois amends public schoolhouse laws, Metal Work 86:250-1 Ag 25 '16

Lighting

Lighting legislation, L. B. Marks, Illum Eng Soc 11:42-7 no 1 '16

Progress in natural school lighting, Illum Engr 9:275-6 S '16

School lighting discussed by Chicago illuminating engineers, Elec R & W Elec'n 67:1114 D 18 '15

School room lighting, F. L. Godinez, il Arch & Bldg 47:365-7, 400-2; 48:20-1, 96-7 O-N '15, F, Je '16

Toilet rooms

New plumbing system in Chestnut school, Montclair, N. J. H. L. Alt, plan Dom Eng 73:358-9 D 18 '15

Plumbing equipment in country high school, il plan Metal Work 85:769-71 Je 9 '16

Sanitary disposal of schoolhouse wastes, diag Metal Work 86:642-3 N 24 '16

Sanitary plumbing in Scottish schools, J. Y. Dunlop, il diag Metal Work 85:409-11 Mr 24 '16

School sanitation, H. L. Alt, plans Brickb 25:167-8 Jl '16

Schools

See also Colleges and universities; Corporation schools; High schools; Open-air schools; Trade schools

Schools and shops, Cooperation of

Co-operative education in Rockford, Ill, A. Gschwindt, Elec R & W Elec'n 69:731 O 21 '16

Co-ordinating university and shop work, A. M. Wilson, il Elec R & W Elec'n 69:544-6 S 23 '16

- Schools and shops, Cooperation of—Continued**
How co-operative courses train young engineers. H. A. Stringfellow. Eng N 75:63-4 Ja 13 '16
- Schools as social centers**
Ideal and the actual in a school and recreation center. plans Am Inst Arch J 4:165-7 Ap '16
- Schoolships**
Our nautical schoolships. F. S. McMurray. il Sci Am 114:474-5 My 6 '16
- Schoop metal spray.** See Metal coating
- Science**
Criticism and creation in science. Sci Am 114:276 Mr 11 '16
Efficient means for establishing a connection between science and industry; abstract. A. Blondel. Am Soc M E J 38:941 N '16
Popular science lectures; report of committee of British association. Engineer 122:246 S 15 '16
Refinements of mechanical science. A. Swasey. Am Soc M E J 38:650 Ag '16
Relation of pure science to industrial research. J. J. Carty. Am Inst E E Pro 35:1411-20 O '16; Same cond. Am Soc M E J 38:940-1 N '16
Science in its relation to engineering. J. A. Brashear. Am Soc M E J 38:1-4 Ja '16; Abstract. Elec W 66:1304 D 11 '15; Abstract. Iron Age 96:1361 D 9 '15
Science linked with industry. R. C. Maclaurin. Met & Chem Eng 15:43-4 Jl 1 '16
Scientific advances during 1915. H. R. Hosmer. Gen Elec R 19:92-5, 313-16 F, Ap '16
Significance of science. Sci Am 114:172 F 12 '16
See also Astronomy; Chemistry; European war and science; Geology; Microscopes and microscopy; Paleontology; Physics; Radioactivity; Scientific research; Scientists
- Study and teaching**
Science teaching in general schools. P. Lien. Engineer 122:392 N 3 '16
Should science teaching be reformed? Sci Am 114:94 Ja 22 '16
- Scientific American medal**
Seventh award of the Scientific American medal for safety devices. W. H. Tolman. il Sci Am 114:171 F 12 '16
- Scientific apparatus and instruments**
Recent developments in scientific instruments and materials. E. Schramm. Met & Chem Eng 15:574-7 N 15 '16
See also Chemical apparatus; Electric apparatus and appliances; Measuring instruments; Optical instruments; Surveying instruments
- Scientific congress, Pan-American.** See Pan-American scientific congress
- Scientific expeditions.** See Antarctic exploration; Arctic exploration
- Scientific management**
Against the Taylor system; plants making munitions for the government aimed at by labor. Iron Age 97:214 Ja 20 '16
Boiler-room practice at Warrior Ridge. J. C. Scholl. Power 43:93-4 Ja 18 '16
British workshop needs. H. F. L. Orcutt. Iron Age 98:412-13 Ag 21 '16
Business news of nation's capital; General Crozier discusses scientific management. Iron Tr R 57:1293-4 D 30 '15
Checking losses in the storeroom. W. G. Astle. Iron Tr R 58:235-9 Ja 27 '16
Conference on scientific management conducted by the Taylor society. Iron Age 97:1208-11 My 18 '16; Iron Tr R 58:1107-8 My 18 '16
Conserving the worker's health and energy. F. B. Gilbreth and L. M. Gilbreth. Iron Age 97:826-8 Ap 6 '16
Educating workers for higher efficiency. F. B. Gilbreth and L. M. Gilbreth. il Iron Age 96:1530-3 D 30 '15
Efficiency in military and industrial preparedness. J. G. White. Elec Ry J 48:106 Jl 15 '16
Engineer as an economist. H. R. Towne. Eng M 51:12-16 Ap '16
- Essentials of shop efficiency; features of scientific management which are applicable to railroad shops. G. W. Armstrong. Ry Mech Eng 90:201-3 Ap '16
Exact control of manufacture in practice. G. D. Babcock. Iron Age 96:1410-13 D 16 '15
Executive and the modern organization. D. T. Farnham. Eng M 51:485-93 Jl '16
First principles of shop planning. F. M. Perkins. il Iron Tr R 58:187-92+ Ja 20 '16
Fixing individual wage rates on facts. G. D. Babcock. Iron Age 97:1375-9 Je 8 '16
Getting the most out of tools. B. W. Benedict. Ry Mech Eng 90:35-7 Ja '16
How graphic control facilitates the fixing of profits. D. T. Farnham. Eng M 52:16-22 O '16
How scientific management works. C. B. Thompson. il Factory 16:128-31, 224-7, 348-51, 456-8 F-MY '16
Modern shop management. J. A. Bursley. Iron Age 98:310-11 Ag 10 '16
Planning and efficiency system in Portland (Ore.) shops; adaptation of the Taylor system to electric railway repair shops. F. P. Maize. il Elec Ry J 47:539-49 Mr 18 '16; Excerpt. Eng M 51:273-5 My '16
Principles of industrial organization. H. N. Stronck. Met & Chem Eng 15:579-85 N 15 '16
Production system in a 75-man shop; Waterbury tool co. W. E. Freeland. il plan Iron Age 98:871-6 O 19 '16
Prohibition of scientific shop management at army arsenals. Iron Age 96:1547 D 30 '15
Pushing up production and lowering cost. C. U. Carpenter. Eng M 51:641-50; 52:95-104 Ag, O '16
Reducing foundry costs by analysis. R. E. Kennedy. il Iron Tr R 59:517-22 S 14 '16; Abstract. Iron Age 98:706-7 S 28 '16
Relation between the accountant and the efficiency engineer. C. E. Knoepfel. J Account 21:101-13 F '16
Scientific management applied at one station. W. J. Collins. Ry Age 61:240-2 Ag 11 '16
Scientific management in a brass foundry. C. G. Barth. Foundry 44:319-20 Ag '16
Scientific management in arsenals. W. Crozier. Iron Tr R 58:649-51 Mr 23 '16
Scientific methods in construction. S. E. Thompson and W. O. Lichtner. Eng Soc W Pa 32:433-54; Discussion. 454-65 Je '16
Scientific versus intuitive administration. D. T. Farnham. Eng M 51:849-54 S '16
Stop watch and the lawn mower. J. Nelson. Iron Age 97:1397 Je 8 '16
System for standardizing maintenance of way work. E. Stimson. Ry Age 60:111-14 Ja 21 '16
Taylor system of management in the Franklin shops. G. D. Babcock. Eng M 51:843-8; 52:1-9, 177-85, 339-54 S-D '16
Telephone plant organization. F. Day. Elec R & W Elec'n 67:1028-31 D 4 '15
Visualizing the essential facts of a business. D. T. Farnham. Eng M 51:651-6 Ag '16
Work, the worker and his wages. F. B. Gilbreth and L. M. Gilbreth. Iron Age 97:602-4 Mr 9 '16
Working efficiency of rolling steel. S. Cornell. Met & Chem Eng 15:177-84 Ag 15 '16
See also Accounting; Bonus system; Cost accounting; Efficiency; Industrial; Employees; Employment systems; Factory management; Foundry management; Machine shop management; Management engineers; Mine management; Motion study; Office management; Payrolls; Planning; Printing offices—Management; Purchasing; Railroads—Management; Records; Routing systems; Shop management; Stores systems; Time keeping; Time study
- Bibliography**
Books on scientific management [16 titles]. Mach 22:605 Mr '16
- Laws and legislation**
Aid to defeat Tavenner bill. W. Kent. Iron Tr R 58:939-40 An 27 '16
Anti-efficiency legislation; the Tavenner bill. Am Ind 16:15-17 My '16
Anti-time-study legislation. Iron Age 97:1444 Je 15 '16
Appeal to Congress to drop Tavenner bill. W. Lewis. Iron Tr R 58:1203-4 Je 1 '16

Scientific management—Laws—Continued

- Campaign against the Tavenner bill. Iron Tr R 58:505 Ap 13 '16
 Campaign to encourage government efficiency. J. G. White. Elec R & W Elec'n 69:105 Jl 15 '16
 Dangerous labor legislation now before Congress. J. R. Dunlap. Eng M 51:1-11 Ap '16
 Defeat Tavenner bill. R. A. Feiss. Iron Tr R 58:1053-5 My 11 '16
 In defense of scientific management. Iron Age 97:816-8 Ap 6 '16
 Letter on the Tavenner bill. N. D. Baker. Iron Tr R 58:1003-5 My 4 '16
 Reports on Tavenner bill. Iron Tr R 58:1164-6 My 25 '16
 Scientific management a campaign issue. Iron Age 97:1566-7 Je 29 '16
 Senate puts its stamp on inefficiency. Iron Age 98:259-60 Ag 3 '16
 Tavenner bill reported. Iron Age 97:1270-1 My 25 '16

Study and teaching

- Co-ordinating technical and business training. N. T. Ficker. Ind Management 52:376-80 D '16
 Engineering schools and industrial methods. H. L. Gantt. Eng M 51:161-6 My '16
 How the college can train managers. J. W. Roe. Eng M 51:537-42 Jl '16
 Industrial organization and the technical schools. D. S. Kimball. Eng M 52:104-8 O '16
 Summer course in scientific management. W. Kent. Iron Age 96:1306-7 D 2 '15

Scientific recreations

- Magic pictures; a novel diversion. S. L. Bastin. Il Sci Am S 82:180 S 16 '16

Scientific research

- British science guild; memorandum on proposed National statutory board of science and industry. Illum Engr 9:251 Ag '16
 Home laboratory. Sci Am 113:552 D 25 '15
 Incidents of applied research. W. R. Whitney. J Ind & Eng Chem 3:560-4 Je '16
 Iron and steel institute; presidential address. W. Beardmore. Engineer 121:404-5 My 12 '16
 Research. A. L. Walker. J Ind & Eng Chem 8:741-2 Ag '16
 Research as a national duty. W. R. Whitney. J Ind & Eng Chem 8:533-7 Je '16
 Scientific and industrial research; report of the Advisory council. Engineer 122:187-8, 219-20, 230-1 S 1-15 '16; Abstract. Illum Engr 9:277-80 S '16
 Training of our captains of industry. R. Hadfield. Met & Chem Eng 15:171-2 Ag 15 '16

See also Chemical laboratories; Chemical research; Electric laboratories; Geographical research; Industrial research; United States—Standards, Bureau of; also National research council

Scientists

- Reform of the man of science. Sci Am S 81:414 Je 24 '16

See also European war and science

Scouring machines. See Wool scouring**Scranton, Pennsylvania**

- Building foundations 150 feet under Scranton armory. Il plan Eng N 76:681-4 O 12 '16
 More mine cave-ins threaten parts of Scranton. Il Eng N 76:280-2 Ag 10 '16

Streets

- Municipal asphalt repairs in Scranton. J. G. Hayes. Il Munic J 40:136-40 F 3 '16

Scrap metal

- Chesapeake & Ohio scrap reclamation. H. M. Brown. Il Ry Mech Eng 90:149-52 Mr '16
 Classification of scrap material at the naval gun factory. E. W. Bonaffon. Metal Ind n s 14:151-2 Ap '16
 Cutting machine that increases the value of light metal scrap. Sci Am 115:83 Jl 22 '16
 Economy in scrap yard arrangement. Il plan Iron Age 96:1403-5 D 16 '15
 Efficient reclamation of bolts and nuts. E. T. Spivy. Il diags plan Ry Mech Eng 90:33-4 Ja '16
 Growing value of the non-ferrous scrap pile. Il Foundry 44:227-8 D 16 '16
 Handling of scrap. E. E. Griest. Ry R 59:357-8 S 9 '16

- Heavy melting steel scrap prices, Pittsburgh, 1901-1915. Iron Age 97:21 Ja 6 '16
 How old metal is reclaimed in a large plant. J. M. Bateman. Il Foundry 44:482-3 N '16
 How the Pennsylvania railroad handles its scrap. E. L. Shaner. Il Iron Tr R 59:363-8 Ag 24 '16
 Hydraulic scrap compressing machine. diag Iron Age 96:1561 D 30 '15
 Making bottom brake rods without welds. W. Constance. Il Ry Mech Eng 90:37 Ja '16
 Manufacture of soft solder from scrap metals. A. Bregman. Il Metal Ind n s 14:59-62 F '16
 Manufacture of solder from scrap white metals. C. F. Loeble. Metal Ind n s 14:323-4 Ag '16; Same. Metal Work 86:671 D 1 '16
 Much scrap recovered. Il Iron Tr R 59:627 S 28 '16
 Philadelphia scrap prices, 1896 to 1915. Iron Age 97:18 Ja 6 '16
 Press for baling light steel scrap. Il Iron Age 97:651 Mr 16 '16
 Proposed specifications for foundry scrap; report of a committee of American foundrymen's association. Iron Age 98:596-9 S 14 '16
 Reclaiming material; abstract of papers by E. J. McKernan and W. M. Robertson, with discussion. diags Ry Mech Eng 90:474-5 S '16
 Reclaiming material at local shops. E. A. Murray. Il diags Ry Age (Mech ed) 89:631-3 D '15
 Reclaiming material on the Seaboard air line. Il Ry Age 60:749-54 Mr 31 '16
 Reclaiming track material from scrap. M. E. Carroll. Il Ry R 58:123-5 Ja 22 '16
 Reclaiming waste molding sand. Il plan Iron Age 98:505 S 7 '16
 Reclamation of scrap; abstracts. J. Harkins; J. H. Daltry. Ry Mech Eng 90:468-9 S '16; Same cont. Ry Age 61:319 Ag 25 '16
 Reclamation on the Rock Island. J. G. Kirk. Il Ry Age 61:596-8 O 6 '16
 Sale of scrap iron criticised by Massachusetts commission. Ry R 59:6-8 Jl 1 '16
 Scrap and reclamation on the Pennsylvania lines east. Il Ry R 58:637-42 My 6 '16
 Scrap-cutting machine; used in Germany for preparing turnings for packing. R. G. Skerrett. diags Iron Age 97:605 Mr 9 '16
 Scrap prices at Chicago, 1903-1915. Iron Age 97:19 Ja 6 '16
 Scrap reclamation on the Chesapeake & Ohio Ry. H. M. Brown. Ry R 59:324-6 S 2 '16
 Superior methods of reclamation. Buffalo Rochester & Pittsburgh Ry. Il Ry R 57:754-6 D 11 '15
 Unique way of handling railroad scrap. F. L. Prentiss. Il diag Iron Age 97:885-8 Ap 13 '16
 Using old tube-mill liners. J. M. Dixon. Eng & Min J 101:185 Ja 22 '16
 Warring on waste; how to get more for your scrap. Il Factory 17:392-5 O '16
 Warring on waste; what you can reclaim from scrap. L. I. Thomas. Il Factory 17:538-41 N '16

See also Detinning; Metal waste

Scrapers

- Half-hour performance of 4-wheel scrapers. Eng N 76:32 Jl 6 '16
 Power backfilling scraper with caterpillar traction. Il Eng & Contr 45:346 Ap 12 '16

Scraping (machine work)

- Surface scraping and surface plates. B. T. Hawley. diags Mach 22:681 Ap '16

Screens

- Chain belt self-cleaning traveling water screens. Textile World 51:1885-8 Ap 15 '16
 Cleveland's sewage treated by revolving screens and novel grit chambers. G. B. Gascoigne. Il diags plan Eng Rec 73:408-10 Mr 25 '16
 Design for shaker screens. C. C. Wright. Il diags plan Coal Age 9:284-8 F 12 '16
 Giant Newargo screen. Il Concrete 9:sup21+ Ag '16
 Grading industries; screens and screening. E. S. Wiard. Met & Chem Eng 14:191-7, 529-33 F 15, My 1 '16
 Gravel grading machine used at Grand Rapids, Mich., filter plant. Il Eng & Contr 46:405 N 8 '16
 Holt multiple strainer. Il Power 43:479-80 Ap 4 '16

Screens—Continued

- Mass screening with flat screens. E: S. Wiard. il diags Met & Chem Eng 14:383-8 Ap 1 '16
- Motor-driven intake screens. il Elec W 67:728-9 Mr 25 '16
- New step perforated screen. diags Coal Age 9:589-90 Ap 1 '16
- Operation of the shaker screen. J: A. Garcia. Coal Age 9:669-70 Ap 15 '16
- Probability and chance in screening. N. Herz. Met & Chem Eng 14:297-8 Mr 15 '16
- Reinsch-Wurl sewage screen. Long Beach, Calif. E. A. Rowe. il plan Eng N 75:836-7 My 4 '16
- Salt-water pumping plant. il diag Power 43:730-1 My 23 '16
- Shaker screen drive. W: H. McGann. diags Coal Age 9:368-72 F 26 '16
- Shaker-screen problems. Coal Age 9:609 Ap 1 '16
- Shaking screen grades in six sizes. il Munic Eng 51:205 N '16
- Simple sand shaker for mechanical analyses. il Concrete 9:168-9 N '16
- Strainer for water line to transformers. diag Elec W 66:1317 D 11 '15
- Traveling screens at Northwest station of Commonwealth Edison co., Chicago. T: Wilson. il diag Power 43:680-2 My 16 '16
- Traveling screens at stations of Philadelphia electric co. H: J. Edsall. il plan Power 44:418-19 S 19 '16
- Traveling water screens. il Munic J 41:395 S 28 '16
- Water intake screens for mill power plant: Corrigan, McKinney & co., Cleveland. il Iron Age 97:1131-2 My 11 '16

See also Riddles

Screens, Projection

- Analysis of moving picture theater lighting. L. W. McOmber. Elec W 68:174-6 Jl 22 '16
- Diffusing media—projection and focusing screens. Illum Eng Soc 11:92-9 no 1 '16

Screw gages. See Screw threads**Screw machines**

- All-gear head for Foster screw machine. il Iron Age 98:681 S 21 '16; Iron Tr R 59:681 O 5 '16; Mach 23:175-6 O '16
- Automatic mechanical control of lathes and screw machines. L. D. Burlingame. il diags Am Soc M E J 38:103-9 F '16; Abstract. Iron Age 96:1406 D 16 '15; Discussion. Am Soc M E J 38:109-12 F '16
- Cleveland full automatic motor-driven machine. il diags Mach 23:73-5 S '16
- Heavy headstock hand screw machine. il Iron Age 97:952 Ap 20 '16
- Himoff screw machine. il Mach 22:820-1 My '16
- Oliver heavy-duty screw machine. diag Mach 22:1008-9 Jl '16
- Pierce plain-head screw machine. il Iron Age 97:1486 Je 22 '16; Mach 22:996-7 Jl '16
- Radical screw machine. W. E. Freeland. il Iron Age 98:292-5 Ag 10 '16
- Screw machine equipment. O. Kylin. il Iron Age 98:1220-1 N 30 '16
- Wachs hand screw machine. il Iron Age 97:190 Ja 20 '16; Iron Tr R 58:295 F 3 '16; Mach 22:525 F '16

See also Machine tools; Screws

Screw presses. See Presses**Screw propellers. See Propellers****Screw threads**

- French screw gauge. diag Engineer 122:234 S 15 '16
- Measuring threaded work. J. McIntyre. diag Mach 22:982 Jl '16
- Method of indicating screw threads. F. J. Schlink. diag Mach 22:800 My '16
- Screw gauges. diags Engineer 121:263-4 Mr 24 '16
- Standardization of screw threads. F. O. Wells. Ry R 58:926-7 Je 24 '16
- Standardization of threads of sockets and lamp bases. Elec W 67:260 Ja 29 '16; Mach 22:510 F '16

See also Pipe threads; Thread cutting; Thread cutting machines

Screwdrivers**Testing**

- Apparatus for testing Crescent screwdrivers. il Mach 22:1025 Ag '16

Screws

- Errors of screws; abstract. diag Am Soc M E J 38:598 Jl '16
- Screws used in jig design; standardized special screws used in General electric co.'s tool equipment. R. F. Pohle. diags Mach 22:689-91 Ap '16
- Table of condensed screw data. L. J. Hengesbach. diags Mach 22:605 Mr '16
- See also* Screw machines; Screw threads; Thread cutting machines

Testing

- Bolted and lagscrewed joints in timber. H. D. Dewell. Eng N 76:797 O 26 '16
- Lagscrewed joints in timber. H. D. Dewell. il diags Eng N 76:162-4 Jl 27 '16
- Lateral bending resistance of metal bolts and lag screws; abstract. H. A. Thomas. diags Am Soc M E J 38:1038-9 D '16

Scrolls (decorative design)

- Mystery of the Ionic volute. R. S. Fanning. Arch Rec 40:288 S '16

Sculpture

- Paul W. Bartlett's latest sculpture. J: J. Klaber. il Arch Rec 39:265-78 Mr '16

See also Bronzes

Reproductions

- Art casting by a new process. R. G. Skerrett. il Sci Am 114:225 F 26 '16

Sea anemones

- Locomotion and behavior of sea-anemones. G. H. Parker. Sci Am S 82:263 O 21 '16

Sea planes

- Aeroplane catapult in the United States navy. il Engineer 121:242 Mr 17 '16
- New form of the fighting aircraft. R. G. Skerrett. il Sci Am 113:513-4 D 11 '15
- Widening the range of the fleet's eyes by means of the aeroplane catapult. R. G. Skerrett. il Sci Am 114:295 Mr 18 '16

Sea power. See Warships**Sea walls**

- Galveston storm repairs. N. T. Blackburn. il Eng N 75:393-5 Mr 2 '16
- Galveston's seawall. H. H. Haines. Sci Am 114:469 My 6 '16
- Protecting Galveston's sea-wall. il Sci Am 114:76 Ja 15 '16
- Sea walls of various designs discussed and compared. diags Eng Rec 73:140 Ja 29 '16
- Shore at Venice, California, best protected by permanent sea wall and low groins. diags Eng Rec 73:51-4 Ja 8 '16

See also Breakwaters; Docks; Harbors; Jetties; Wharves

Sea water

- Taking salt from the sea with modern methods. P. H. Dowling. il Sci Am 114:119 Ja 29 '16

See also Concrete, Effect of sea water on

Seaboard air line railway

- Annual report. map Ry Age 59:1080-2, 1115-16 D 10 '15

Sealing

- Fur seals of the Pribilof Islands. Sci Am 114:154 F 5 '16

Seals

- Seals for mine samples. il Eng & Min J 101:439 Mr 4 '16

Seamanship. See Navigation**Seamen's act**

- Facts concerning the seamen's act. H. H. Raymond. Int Marine Eng 21:106 Mr '16

Searchlights

- Efficiency of projectors and reflectors. H. T. Harrison. Illum Engr 9:223-4 Jl '16
- Illumination in the navy. C. S. McDowell. Illum Eng Soc 11:573-81 no 5 '16; Same cond. Illum Engr 9:281-3 S '16; Discussion. Illum Eng Soc 11:582-7 no 5 '16
- Lighting in the army. E: D. Ardery. Illum Eng Soc 11:664-7 no 7 '16
- Modern electric searchlight projectors. J. H. Johnson. il diags Engineer 122:227-9, 252-4, 294-6 S 15-22, O 6 '16
- Parabolic mirror; with discussion. F. A. Benford, jr. diags Illum Eng Soc 10:905-31 no 9 '15

Searchlights—Continued

- Searchlights in war. *il* Sci Am S 81:69 Ja 29 '16
 Sperry high-intensity searchlight for governmental purposes. *il* diag Elec W 68:611-12 S 23 '16

Seashore

- Hawaiian blowholes. V. MacCaughey. *il* Sci Am 113:522 D 11 '15
See also Beaches; Shore protection

Seattle, Washington

- Completion of Lake Washington canal. G. C. Dohm. *il* map Int Marine Eng 21:416-20 S '16
 Seattle and city planning. W. R. B. Willcox. *il* plans Am Inst Arch J 4:115-18 Mr '16

Architecture

- Cobb building. J. J. Klaber. *il* plans Arch Rec 39:154-60 F '16

Rapid transit

- Prospects poor for Seattle municipal lines. A. L. Valentine. Elec Ry J 47:1185-6 Je 24 '16

Subways (conduits)

- Seattle utilities pay city for subsurface maps. A. L. Valentine. maps Eng Rec 72:792 D 25 '15

Water supply

- \$4,000,000 water supply development for Seattle, Wash. Eng & Contr 46:133-4 Ag 9 '16
 Plans to silt Cedar river reservoir with clay and place asphaltic lining. Eng Rec 74:228-9 Ag 19 '16
 Sealing Seattle's reservoir. *il* Munic J 41:253-6 Ag 31 '16
 Seattle water supply. J. Weinzi. *il* J Ind & Eng Chem 8:369-71 Ap '16
 Seattle water works improvements. *il* map Munic J 41:65-8 Jl 20 '16
 Seattle water-works troubles. C. E. Fowler. *il* map Eng N 75:585-8 Mr 30 '16
 Water for a million people proposed at Seattle. A. J. Dimock and L. B. Youngs. Eng N 76:42-3 Jl 6 '16

Wharves

- Seattle's steamship terminals. G. C. Dohm. *il* Int Marine Eng 21:495-6 N '16

Seawalls. See Sea walls**Seaweed. See** Gulaman; Kelp**Secondary batteries. See** Storage batteries**Section cars. See** Cars (section)**Securities**

- Fundamentals of investment securities accounting. E. H. Griswold. J Account 22:333-42 N '16
 Prospectuses of the new industrials. K. Simpson. J Account 22:265-9 O '16
See also Investments; Railroads—Securities

Security league, National. See National security league**Sedimentation and deposition**

- Wind as an earth sculptor. H. Lipschütz. *il* Sci Am S 82:317 N 11 '16

Seeds. See Germination**Seepage**

- Losses of water by seepage from irrigation canals. Eng & Contr 45:544 Je 14 '16

- Small irrigation canals lined with concrete to prevent seepage water loss. C. E. Edwards. *il* Eng Rec 73:508-10, 539-41 Ap 15-22 '16

Seismograph

- New use for the seismograph. R. G. Skerrett. Sci Am 114:284 Mr 11 '16

Selby smelter commission

- Report of the Selby smelter commission; with accompanying papers, bibliog *il* diag charts maps U S Bur Mines Bul 98:1-528 '15; Abstract. J Ind & Eng Chem 7:41-5 Ja '15; Abstract. Eng & Min J 98:1075-8 D 19 '14

Selenium

- Analysis of commercial selenium. H. D. Greenwood. Eng & Min J 100:1012 D 18 '15

- Seleniferous pyrites in the manufacture of sulfite cellulose. McMillan. J Ind & Eng Chem 8:278-9 Mr '16

- True nature of speech. J. B. Flowers. Am Inst E E Pro 35:198-201 F '16; Discussion. 35: 1085-6 Jl '16

Selling. See Sales; Salesmen and salesmanship**Semi-steel**

- In defense of semi-steel. Y. A. Dyer. Iron Age 97:673 Mr 16 '16
 Manufacture and properties of semi-steel. D. M'Lain. *il* Iron Age 98:702-4 S 28 '16
 Melting steel and gray iron in a cupola. D. McLain. Iron Age 97:781-2 Mr 30 '16
 Semi-steel; abstract. J. E. Hurst. Am Soc M E J 38:263-4 Mr '16
 Semi-steel defended and attacked. Y. A. Dyer and R. Moldenke. Iron Age 97:542-4 Mr 2 '16; Abstract. Am Soc M E J 38:347-8 Ap '16
 Steel scrap in various foundry mixtures. G. S. Evans. *il* Iron Age 97:1541-5 Je 29 '16; Abstract. Am Soc M E J 38:666 Ag '16

Seneca Falls, New York

- Power plants and factories moved at Seneca Falls. *il* diag Eng N 76:145-9 Jl 27 '16

Senility. See Old age**Senses and sensation**

- See also* Color sense; Sight

Separators, Oil. See Oil separators**Separators, Vacuum. See** Vacuum separators**Septic tanks**

- Concrete septic tanks for farm and town dwellings. diag Munic Eng 51:64-6 Ag '16
 Do septic tank outlets freeze? Concrete Cem 7:215 D '15
 Dr. Travis and the Imhoff tank. H. A. Roehling. Eng N 76:809 O 26 '16
 Dr. Travis and the septic tank. Eng N 76:225-6 Ag 3 '16
 Double tank proposed for residential sewage plants. W. S. Coulter. *il* diag Eng Rec 74:298-9 S 2 '16
 Dual water supply system in suburban home. *il* plan Metal Work 86:140-2 Ag 4 '16
 Hydrolytic sewage tanks at Luton, England. J. W. Tomlinson. *il* plan Eng N 76:193-5 Ag 3 '16
 Kansas experience in running small sewage works. F. M. Veatch. Eng N 76:64 Jl 13 '16
 Method and cost of remodeling the Lake Forest, Ill., septic tank into a modern two story settling tank. N. N. Campbell. diag plans Eng & Contr 45:284-6 Mr 22 '16; Same cond. Eng Rec 73:219 F 12 '16
 Sanitary equipment of a country estate, Southold, Long Island. *il* diag plans Metal Work 85:313-15 Mr 3 '16
 Septic tank for institutional sewage disposal system. diag plan Munic J 40:879 Je 22 '16
 Septic tank for school. diag Metal Work 84:776 D 17 '15
 Septic tank for small residence. diag Metal Work 86:20 Jl 7 '16
 Sewer tile for septic tanks. diag Metal Work 86:470 O 13 '16
 Small septic tanks built of vitrified clay pipes. diag Metal Work 86:321 S 8 '16
 Trouble with grease in septic tank. *il* Metal Work 85:387 Mr 17 '16
 Water supply and sewage disposal systems for suburban and farm premises. P. H. Bryce. diag Dom Eng 74:356-8 Mr 18 '16
See also Imhoff tanks; Sewage tanks

Patents

- Cameron septic patents expired this week. G. W. Fuller. Eng Rec 74:436 O 7 '16
 League of Iowa municipalities calls conference to contest claims for payment of royalty for use of septic process of sewage treatment. F. G. Pierce. Eng & Contr 45:216 Mr 1 '16
 Mutual defense against septic tank infringement suits. Munic J 40:406 Mr 23 '16
 National septic process protective league organizes. Eng & Contr 45:231-2 Mr 22 '16; Eng N 75:578 Mr 23 '16
 United States court holds Cameron septic process patent still in force. H. D. Wyllie. Munic Eng 49:217 D '15
Sequoia national park
 Sequoia national park. M. Daniels. *il* Am For 22:12-21 Ja '16

Sequoias

First record of a sequoia. D. Bruce. *Am For* 22:489-90 Ag '16

Serge

Peroxide bleaching and finishing of white serge. *il Textile World* 51:2565+ My 27 '16

Sericite

Sericite a low temperature hydrothermal mineral. A. F. Rogers. 7 pls *Econ Geol* 11:118-50 Mr '16

Serum therapy

New serum for restoring life to apparently drowned persons. *Sci Am* 114:527 My 20 '16

Servia

See also Mines and mineral resources—Servia

Commerce

Printers as messengers of commerce. W. H. Seed. *Inland Ptr* 57:182-5 My '16

Settling tanks. *See* Sewage tanks; Thickeners

Sewage

Baltimore experiments on grease from sewage. C. W. Hendrick. *Eng N* 75:1155 Je 15 '16

See also Concrete, Effect of sewage on; Sewage disposal; Sewage pumping; Sewage tanks; Sewer pipes; Sewerage; Water pollution

Analysis

Modification of Whipple's method for organic nitrogen in sewages. F. W. Bruckmiller and L. E. Jackson. *J Ind & Eng Chem* 8:499-500 Je '16

Testing

Oxygen demand of sewages. F. W. Bruckmiller. *J Ind & Eng Chem* 8:403-4 My '16

Sewage aeration. *See* Sewage disposal—Activated sludge method

Sewage disposal

Application of sewage to contact beds. F. E. Daniels. *Eng & Contr* 45:19 Ja 5 '16

Cleburne, Texas, sewage disposal plant. R. C. Lowry. *il Munic J* 41:121-3 Ag 3 '16

Conservation of operating head controls design of Oaklyn (N. J.) sewage plant. W. D. Vosbury. *il diags Eng Rec* 73:792-4 Je 17 '16

Cubic performance: rate of volumetric work done by sewage and water treatment devices. L. C. Frank. *diag Eng Rec* 72:751-2 D 18 '15

Disposal of dry sewage in Corsicana. R. C. Lowry. *Munic J* 40:718-19 My 25 '16

Disposal of suspended matters in sewage. R. Hering. *Dom Eng* 73:331-2, 363-5 D 11-18 '15

Eight years of Imhoff tank design and operation. K. Imhoff. *il diags Eng N* 75:14-19, 52-5 Ja 6-13 '16

Extent to which sewage can be purified by practicable methods of artificial treatment now in use. H. P. Eddy. *il diags Eng Soc W Pa* 32:226-54 Ap '16; Same cond. *Eng & Contr* 45:581-6 Je 28 '16; Discussion. *Eng Soc W Pa* 32:254-70 Ap '16

Isolated sewage-treatment plants recommended for lake cities north of Chicago. *Eng Rec* 74:656-8 N 25 '16

Joint sewage disposal in California. *Munic J* 40:548-50 Ap 20 '16

Kansas experience in running small sewage works. F. M. Veatch. *Eng N* 76:64-6 J1 13 '16

Largest Imhoff tank plant nearly ready to treat Rochester's sewage. C. A. Poole. *il diags plan Eng Rec* 73:204-8 F 12 '16

Mud-dwelling worms suggest sludge-disposal possibilities. *Eng Rec* 74:578-9 N 11 '16

\$1,800,000 sewage disposal development for Los Angeles, Cal. *plan Eng & Contr* 45:491-2 My 31 '16

Reaeration held to be important in self-purification of streams. E. B. Phelps. *Eng Rec* 74:617-18 N 18 '16

Rochester sewage disposal plant. *il Munic J* 39:915-16 D 16 '15

Scientific cleaning of settling basins; with cost tables. A. Potter. *diags Eng & Contr* 46:326-2 O 11 '16

Sense or sentiment to govern in sewage treatment? A. Potter. *Eng N* 76:855 N 2 '16

Sewage disposal problem confronting the city of Philadelphia. W. L. Stevenson. *diags map Boston Soc C E J* 3:345-62 S '16

Sewage-works construction at Dallas, Tex. *il plan Eng N* 75:708-9 Ap 13 '16

Single-house sewage disposal plant, Lewisville, Ark. *diags Eng N* 75:434 Mr 2 '16

Small sewage disposal plant, Ebensburg, Pa. *Munic J* 39:982 D 30 '15

State board of health control of sewage works; report of committee of American public health association; abstracts. *Eng N* 76:859-60 N 2 '16; *Eng Rec* 74:582-3 N 11 '16

Traveling sewage-distributor changes, Springfield, Mo. A. Potter. *il Eng N* 75:1028-9 Je 1 '16

Will sewage system work? *Metal Work* 85:166-7, 230 Ja 28, F 11 '16

Year's operation of Fitchburg sewage works. F. W. Jones. *Eng Rec* 74:565-6 N 4 '16

See also Drainage, House; Imhoff tanks; Plumbing; Refuse and refuse disposal; Septic tanks; Sewage irrigation; Sewage pumping; Sewage tanks; Sewer cleaning; Sewer pipes; Sewerage; Sewers, Concrete; Water pollution; Water purification

Activated sludge method

Activated sludge experiments at Salford. W. H. Duckworth. *Engineer* 120:620-1 D 31 '15

Activated-sludge experiments at University of Illinois. E. Bartow, F. W. Mohlman and J. F. Schnellbach. *diag Eng N* 76:972-3 N 23 '16

Activated sludge experiments in Brooklyn, N. Y. G. T. Hammond. *Munic Eng* 50:73 F '16

Activated sludge in Houston. *diags Munic J* 40:585-8 Ap 27 '16

Activated sludge in Milwaukee. T. C. Hatton. *Munic J* 40:785-7 Je 8 '16; Discussion. 40:824-5 Je 15 '16

Activated sludge method in England. *Munic J* 40:199-200 F 10 '16

Activated-sludge method of sewage purification; papers presented at the 52d meeting of the American chemical society. *J Ind & Eng Chem* 8:642-54 J1 '16

Activated-sludge novelties at Hermosa Beach, Calif. A. M. Brosius. *il diags plan Eng N* 76:890-2 N 9 '16

Activated sludge process for the purification of wastes from a sheepskin tannery; abstract. H. P. Eddy. *Munic J* 41:513 O 26 '16

Activated-sludge process given preference. T. D. Allin and R. V. Orbison. *Eng Rec* 74:628 N 18 '16

Activated-sludge sewage treatment. *Eng Rec* 73:5-6 Ja 1 '16

Activated sludge sewage treatment. G. T. Hammond. *Munic J* 41:480-3 O 19 '16

Activated sludge sewage treatment in America. *Engineer* 122:170 Ag 25 '16

Aeration suggested for disposal of sludge. G. T. Hammond. *Eng Rec* 74:448-9 O 7 '16

Air-diffuser experiences with activated-sludge tanks. *Eng N* 76:106-10 J1 20 '16

Bottom of pipe perforated for air distribution. A. W. Haddow. *Eng Rec* 74:660 N 25 '16

British and American patents on activated sludge. T. C. Hatton. *Eng N* 75:189-90 Ja 27 '16

Conclusions on activated sludge tests. T. C. Hatton and W. R. Copeland. *Eng Rec* 73:489 Ap 8 '16

Experiences in the application of the activated sludge process to Chicago stockyards sewage. A. Lederer. *Eng & Contr* 45:388 Ap 26 '16; Same. *Eng N* 75:932 My 18 '16

Fundamental principles of the activated sludge process of sewage treatment. T. C. Hatton. *Eng & Contr* 45:235-6 Mr 8 '16

Is the activated sludge process of sewage treatment to be patented again? *Eng & Contr* 45:208-9 Mr 1 '16

Large activated-sludge plant at Milwaukee, Wis. *il diags Eng N* 76:686-8 O 12 '16

Latest method of sewage treatment. E. Bartow. *il Am Water Works Assn J* 3:327-45 Je '16; Same. *Boston Soc C E J* 3:153-70 Ap '16; Discussion. *Am Water Works Assn J* 3:869-70 S '16

Mechanical agitation of sewage proved unsuccessful. C. H. Nordell. *Eng N* 76:856 N 2 '16

Sewage disposal—Activated sludge method—*Cont.*
Purification of sewage by aeration in the presence of activated sludge. E: Bartow and F. W. Mohlman. *il diag plan J Ind & Eng Chem* 8:15-17 Ja '16; Same. *Eng & Contr* 44:433-4 D 1 '15; Same cond. *Eng N* 74:1096-7 D 2 '15

Results and conclusions from a year's operation of the activated sludge sewage treatment plant of Milwaukee. T. C. Hatton. *Eng & Contr* 46:407-9 N 8 '16; Same cond. *Munic J* 41:510-12 O 26 '16

Sanitary engineering in 1915. *Engineer* 121:30-1 Ja 14 '16

Status of activated-sludge sewage treatment. G: T. Hammond. *il Eng N* 75:798-801 Ap 27 '16

Summary and latest results of experimental work on activated sludge at Milwaukee. Wis. T. C. Hatton. *Eng & Contr* 45:104-8 F 2 '16; Same cond. *Eng N* 75:262-3, 306-8 F 10-17 '16; Excerpts. *Eng Rec* 73:255 F 19 '16

Tests show activated-sludge process adapted to treatment of stock-yards wastes, Chicago. Ill. *Eng Rec* 74:137-8 Jl 29 '16

Treatment of sewage by aeration in the presence of activated sludge. E: Bartow. *il Met & Chem Eng* 13:901-4 D 1 '15; Same cond. *Munic Eng* 50:6-8 Ja '16

Trial activated-sludge unit at Cleveland, Ohio. R. W. Pratt. *il diag Eng N* 75:671-2 Ap 6 '16

Winter experience with the activated sludge process of sewage treatment at Milwaukee—sludge disposal. W: R. Copeland. *Eng & Contr* 45:386-7 Ap 26 '16

World's first full-scale plant for the treatment of sewage by the activated sludge process, Milwaukee, Wis. T. C. Hatton. *diag plan Eng & Contr* 44:322-7 O 27 '15; Same cond. *Eng Rec* 72:481-4 O 16 '15; Abstract. *Munic J* 39:776-7 N 18 '15; Abstract. *Engineer* 121:58-9 Ja 21 '16

Year of activated sludge at Milwaukee, Wis. G: W. Fuller. *Eng N* 74:1146-7 D 9 '15

Chemical treatment

Nitrates and oxygen demand. F. W. Bruckmiller. *J Ind & Eng Chem* 8:899-900 O '16

Cost

Cost comparison of sewage treatment. H. P. Eddy. *Eng Rec* 74:557 N 4 '16

Operation of Baltimore sewage disposal plant. G. J. Requardt. *diag Munic J* 41:538-41 N 2 '16

Sewage treatment works for cities on boundary waters. E. B. Phelps. *Eng & Contr* 45:551 Je 14 '16

Electrolytic treatment

Electrolytic sewage tests at Elmhurst and Decatur. W. S. Shields. *Eng N* 76:370-1 Ag 24 '16

Electrolytic sewage treatment in Boro of Queens, New York city. J. W. Routh. *Munic Eng* 50:19-20 Ja '16

Electrolytic sewage treatment little better than lime alone. E: Bartow. *Eng Rec* 74:596-7 N 11 '16

Electrolytic sewage-treatment tests at Durant, Okla. *il plan Eng N* 76:547-8 S 21 '16

Final report on Elmhurst, Long Island, disposal plant. *Eng N* 76:91 Jl 13 '16

Treatment of sewage with electricity and lime. *Munic Eng* 49:222-3 D '15

Experiments

Activated sludge experiments at Salford, W. H. Duckworth. *Engineer* 120:620-1 D 31 '15

Activated-sludge experiments at University of Illinois. E: Bartow, F. W. Mohlman and J. F. Schnellbach. *diag Eng N* 76:972-3 N 23 '16

Activated sludge experiments in Brooklyn, N. Y. G: T. Hammond. *Munic Eng* 50:73 F '16

Activated sludge method in England. *Munic J* 40:199-200 F 10 '16

Activated-sludge novelties at Hermosa Beach, Calif. A. M. Brosius. *il diag plan Eng N* 76:890-2 N 9 '16

Activated sludge sewage treatment. G: T. Hammond. *Munic J* 41:480-3 O 19 '16

Electrolytic sewage treatment little better than lime alone. E: Bartow. *Eng Rec* 74:596-7 N 11 '16

Fundamental principles of the activated sludge process of sewage treatment. T. C. Hatton. *Eng & Contr* 45:235-6 Mr 8 '16

Latest method of sewage treatment. E: Bartow. *il Am Water Works Assn J* 3:327-45 Je '16; Same. *Boston Soc C E J* 3:153-70 Ap '16

Mechanical agitation of sewage proved unsuccessful. C. H. Nordell. *Eng N* 76:856 N 2 '16

Oxygen demand of sewages. F. W. Bruckmiller. *J Ind & Eng Chem* 8:403-4 My '16

Purification of sewage by aeration in the presence of activated sludge. E: Bartow and F. W. Mohlman. *il diag plan J Ind & Eng Chem* 8:15-17 Ja '16; Same. *Eng & Contr* 44:433-4 D 1 '15; Same cond. *Eng N* 74:1096-7 D 2 '15

Results of first year's experiments with small sewage treatment plants by U. S. public health service. L. C. Frank. *Eng & Contr* 45:420-2 My 3 '16

Sewage-testing station report limits processes. *Eng Rec* 74:80-1 Jl 15 '16

Slaughter-house sewage test plant, Buenos Aires, W. S. Coulter. *Eng N* 76:837-8 N 2 '16

Summary and latest results of experimental work on activated sludge at Milwaukee, Wis. T. C. Hatton. *Eng & Contr* 45:104-8 F 2 '16; Same cond. *Eng N* 75:262-3, 306-8 F 10-17 '16; Excerpts. *Eng Rec* 73:255 F 19 '16

Treatment of sewage by aeration in the presence of activated sludge. E: Bartow. *il Met & Chem Eng* 13:901-4 D 1 '15; Same cond. *Munic Eng* 50:6-8 Ja '16

Trial activated-sludge unit at Cleveland, Ohio. R. W. Pratt. *il diag Eng N* 75:671-2 Ap 6 '16

See also Sewage disposal—Activated sludge method

Filtration

Design and construction of the sewage treatment plant at Pana, Ill.—trickling filter a feature. A. C. Stanfield. *il diag Eng & Contr* 45:130-2 F 9 '16; Excerpts (Sewage filters have unique distributing system). *Eng Rec* 73:551 Ap 22 '16

Hints on the design and operation of intermittent sand sewage filters. D. C. Faber. *diag Eng & Contr* 45:168-9 F 16 '16

Imhoff tank and Dunbar filters at Ennis, Tex. *diag Eng N* 75:867 My 4 '16

Imhoff tanks and sprinkling filters, Cleburne, Tex. R. E. McDonnell. *il diag Eng N* 76:1028-30 N 30 '16

Sewage-treatment works for Altamont, Y. W. C. A. camp. H: W. Taylor. *il Eng N* 74:1219-20 F 23 '15

Small sewage sprinkling filter with unique features, Colorado Springs. R. C. Hardman. *diag Eng & Contr* 46:131-2 Ag 9 '16

See also Filters and filtration

Screening

Cleveland's sewage treated by revolving screens and novel grit chambers. G: B. Gascoigne. *il diag plan Eng Rec* 73:408-10 Mr 25 '16

Reinsch-Wurl sewage screen, Long Beach, Calif. E. A. Rowe. *il plan Eng N* 75:836-7 My 4 '16

Sewage screening and sludge burning plant at Long Beach, Cal. prevent sea shore nuisances. *il diag Eng Rec* 73:664-5 My 20 '16

Statistics

Sewage treatment plants in Ohio. W. H. Dittoe. *Eng & Contr* 46:412 N 8 '16

Sewers and sewage disposal—1916; tabulation. *Munic Eng* 50:153-4 Ap '16

Terminology

Definitions of sewerage and sewage-disposal terms. *Eng N* 76:858-9 N 2 '16

Definitions of sewerage and sewage-disposal terms. E. B. Phelps. *Eng N* 76:955 N 16 '16

Need of standard terms in sewage-disposal work. J: H. Gregory. *Eng N* 75:316-17 F 17 '16

Sewage nomenclature. *Eng Rec* 74:548 N 4 '16

Standard sewage-works terms. K. Allen. *Eng N* 75:507 Mr 16 '16

Sewage disposal, Rural

- Chemical closets for rural communities. *il* Metal Work 85:71-2 Ja 7 '16
- Double tank proposed for residential sewage plants. W. S. Coulter. *il* diag Eng Rec 74:298-9 S 2 '16
- How to dispose of sewage. T. Darlington. Factory 17:356+ S '16
- Modern plumbing for the country home. *diag* Metal Work 85:738-9 Je 2 '16
- Plumbing equipment of small country house. *plan* Metal Work 86:464-5 O 13 '16
- Sanitary disposal of schoolhouse wastes. *diag* Metal Work 86:642-3 N 24 '16
- Sanitary equipment of a country estate, Southold, Long Island. *il* diag plans Metal Work 85:313-15 Mr 3 '16
- Sewage disposal for isolated houses. H. C. Campbell. *diag* plan Bldg Age 38:67-8 Jl '16
- Sewage disposal system for small towns. P. Hansen. *plans* Metal Work 84:731-2 D 10 '15
- Sewage-treatment plant, Cook county institutions. B. J. Ashley. *il* diag Eng N 76:296-7 Ag 17 '16
- Small sewage purifying plant. *diag* Metal Work 86:612 N 17 '16
- U. S. health bulletin recommends primitive methods of waste disposal in rural communities. *il* Dom Eng 77:261 N 25 '16
- Water supply and sewage disposal systems for suburban and farm premises. P. H. Bryce. *diag* Dom Eng 74:356-8 Mr 18 '16
- Sewage ejectors**
- Motor-driven centrifugal sewage ejector. *il* Elec W 68:192 Jl 22 '16
- Yeomans duplex centrifugal machine. *il* Munic J 41:335 S 14 '16
- Sewage filters.** See Sewage disposal—Filtration
- Sewage irrigation**
- How the city of Nottingham, England, solved its sewage disposal problem. C. M. Hitch. Dom Eng 72:377-8 S 25 '15; Same. Metal Work 84:399 S 24 '15; Same. Eng & Contr 44:482-3 D 22 '15
- Successful sewage disposal by broad irrigation. T. Bartlett. *il* Eng N 76:586-7 S 28 '16
- Sewage pumping**
- Brooklyn adds an automatic sewage-pumping station. L. J. Gersoni. *il* plan Eng N 76:810-12 O 26 '16
- Building Albany sewage pump house and grit chamber. S. B. Vernon. *il* diag plan Eng N 76:738-40 O 19 '16
- Centrifugal sewage pump saves force main. G. G. Earl. Eng N 75:39 Ja 6 '16
- Combined electrically operated traffic signal and automatic sewage pumping station at Abilene, Kan. F. C. Perkins. Eng & Contr 45:590 Je 28 '16
- Grit chamber and pump station, Albany sewage-works. J. H. Gregory. *diag* plan Eng N 75:1164-6, 1224-7 Je 22-29 '16
- Motor-driven pump as auxiliary in pumping station. Elec W 68:673 S 30 '16
- Motor-driven pumping equipment for preventing sewer flooding. *il* Elec W 67:882 Ap 15 '16
- Sewage pumping in Boston. Munic J 40:618-19 My 4 '16
- Sewage pumping in Schenectady. Munic J 40:331 Mr 9 '16
- Sewage pumps in New Orleans. *il* Munic J 40:13-15 Ja 6 '16
- Sewerage system at the General electric company's works, Schenectady, N. Y. P. G. Koch. *il* diag Gen Elec R 19:156-8 F '16; Same cond. Eng Rec 74:206 Ag 12 '16; Same cond. Metal Work 86:395-6 S 29 '16
- Small sewage pumping station for park site. W. D. Vosbury. *il* diag Eng Rec 73:610-11 My 6 '16
- South End sewer system of Boston. E. S. Dorr. *il* diag plan Boston Soc C E J 2:355-72 D '15; Abstract. Eng N 74:1155 D 16 '15; Excerpts. Eng & Contr 45:18-19 Ja 5 '16
- Storing and pumping sewage, Manchester, Mass. C. W. Sherman. *diag* Eng N 75:1076-7 Je 8 '16
- Testing the 12-ft. Wood-Nordberg pump. W. H. P. Creighton. *il* plan Eng N 75:70-4 Ja 13 '16

Underground sewage-pumping station, Abilene, Kan. *il* diag Eng N 75:565 Mr 23 '16

What the Wood-pump test means to New Orleans. G. G. Earl. Eng N 75:74-5 Ja 13 '16

Sewage purification. See Sewage disposal

Sewage sludge

- Aeration suggested for disposal of sludge. G. T. Hammond. Eng Rec 74:448-9 O 7 '16
- Fertilizer value of activated sludge. E. Bartow and W. D. Hatfield. *il* J Ind & Eng Chem 8:17-20 Ja '16; Same. Eng & Contr 44:434-6 D 1 '15; Abstract. Eng N 74:1097 D 2 '15
- Fundamental principles of the activated sludge process of sewage treatment. T. C. Hatton. Eng & Contr 45:235-6 Mr 8 '16
- Getting grease and fertilizer from city sewage. K. Allen. Eng N 75:1005-6 My 25 '16
- Grease and fertilizer base from Boston sewage. R. S. Weston. Eng N 75:913 My 11 '16
- Is the recovery of the nitrogen in sewage sludge practicable? with discussion. W. R. Copeland. Eng N 76:665-8 O 5 '16; Same. Eng Rec 74:444-6 O 7 '16; Abstract. Munic J 41:446-8 O 12 '16
- Latest method of sewage treatment. E. Bartow. *il* Am Water Works Assn J 3:327-45 Je '16; Same. Boston Soc C E J 3:153-70 Ap '16
- Lime to correct acid sludge in Imhoff sewage tanks. G. W. Fuller. Eng N 75:572-3 Mr 23 '16
- Lime to correct acid sludge in Imhoff sewage tanks. W. L. Stevenson. Eng N 75:430-1 Mr 2 '16
- Purification of sewage by aeration in the presence of activated sludge. E. Bartow and F. W. Mohlman. *il* diag plan J Ind & Eng Chem 8:15-17 Ja '16; Same. Eng & Contr 44:433-4 D 1 '15; Same cond. Eng N 74:1096-7 D 2 '15
- Treatment of sewage by aeration in the presence of activated sludge. E. Bartow. *il* Met & Chem Eng 13:901-4 D 1 '15; Same cond. Munic Eng 50:6-8 Ja '16
- See also Sewage disposal
- Sewage tanks**
- Method and cost of remodeling the Lake Forest, Ill., septic tank into a modern two-story settling tank. N. N. Campbell. *diag* plans Eng & Contr 45:284-6 Mr 22 '16; Same cond. Eng Rec 73:219 F 12 '16
- Scientific cleaning of settling basins. A. Potter. *diag* Eng & Contr 46:320-2 O 11 '16
- See also Imhoff tanks; Septic tanks
- Sewer cleaning**
- Efficient sewer cleaner. *il* Sci Am 115:213 S 2 '16
- Hydraulic ejectors for grit removal merit trial in sewer maintenance. J. H. Gregory. *il* diag Eng Rec 73:141-2 Ja 29 '16
- Kuhlman sewer cleaning machine. *il* Munic Eng 51:30-1 Jl '16; Munic J 41:83-4 Jl 20 '16
- Otterson auto-ejector for cleaning catch-basins. *il* Munic J 41:113 Jl 27 '16
- Seattle uses ejector to clean sewer catch basins. A. W. Howard. *il* Eng Rec 72:690 D 4 '15
- Sewer cleaning in Atlantic City. F. T. Parker. *il* diag Munic J 39:911-13 D 16 '15
- Sewer cleaning machine used at Hammond, Ind. *il* diag Eng & Contr 46:137 Ag 9 '16
- Sewer design**
- Building relief and outlet sewers at Chicago. *il* diag map Eng N 75:212-14 F 3 '16
- Combined sidewalk curb and storm water sewer, Ann Arbor, Mich. *il* Eng & Contr 46:131 Ag 9 '16
- Comparative rainfall records used in designing sewers and drains. Munic Eng 50:16 Ja '16
- Evanston intercepting sewer, Chicago, Ill. *diag* Eng & Contr 46:227-8 S 13 '16
- Failures in a 6-ft. concrete sewer at Cairo, Ill. *diag* Eng N 75:505 Mr 16 '16
- Features of the design of combined and storm water sewers. E. S. Spencer. Eng & Contr 45:228 Mr 8 '16
- Long-time New York rainfall as basis for sewer design. O. Hufeland. Eng N 76:393-7, 450-4 Ag 31-S 7 '16

Sewer design—Continued

New and old sewers taking stockyard sewage. Eng N 76:487-8 S 14 '16
 Sewer intake on a running stream. diags Eng N 74:1136 D 9 '15

Sewer explosions

Detroit sewer wrecked by gasoline explosion. il map Eng N 75:577 Mr 23 '16
 Leaking gasoline caused Detroit sewer explosion. A. L. Sears. il map Eng Rec 73:426 Mr 25 '16
 Quantity of gasoline necessary to produce explosive conditions in sewers. G. A. Burrell and H. T. Boyd. U S Bur Mines Tech Pa 117:1-17 '16; Excerpts. Eng & Contr 46:240-1 S 13 '16

Sewer failures

Failures in a 6-ft. concrete sewer at Cairo, Ill. diags Eng N 75:505 Mr 16 '16

Sewer gas

Sewage gas tank utilized for light and heat. C: C. Hommon. il Eng Rec 73:182-3 F 5 '16
 Sewer gas affects concrete above water line in Chicago sewer. B: Brooks. il diag Eng N 76:486-7 S 14 '16

Sewer pipes

Can ground water be kept out of sewers? C: P. Chase. Eng Rec 73:445 Ap 1 '16
 Choosing sewer materials in Portland, Ore. Eng & Contr 45:184 F 23 '16
 Iron and steel sewer pipe. J. F. Springer. il Munic Eng 51:87-91 S '16
 Making lock-joint concrete pipe at Dallas, Tex. il Eng N 75:563-5 Mr 23 '16
 Making tight joints in submerged sanitary sewers on Coney Island. Eng & Contr 45:143 F 9 '16
 Making tight sewer joints. H. W. Hatton. Munic J 40:870 Je 22 '16
 Method of computing size of house drain; requirements of plumbing codes in various cities compared. J. Graham. Dom Eng 74:194-6 F 12 '16
 Methods, cost and results obtained in the use of asphalt or joints in tile pipe sewers. P. E. Green. il Eng & Contr 45:192-6 F 23 '16
 Sewer pipes from Hawaiian molten lava. Metal Work 85:613 My 5 '16
 Steel aqueduct for sewer. il diags Eng N 75:880-1 My 11 '16
 Tests of effect of method of bedding upon the supporting strength of drain tile and sewer pipe. N. J. Schlick. diag Eng & Contr 45:394-6 Ap 26 '16
See also Sewer cleaning; Sewers

Sewer testing

Brick and tile sewers cracked under same loading. il Eng N 76:557-8 S 21 '16

Sewerage

All work for double-deck sewer performed from five mounted platforms. il diag Eng Rec 74:227 Ag 19 '16
 Bear Grass creek improvement, Louisville, Kentucky. Munic Eng 49:213-14 D '15
 Cause, amount and restriction of infiltration of ground water into sewers. C: P. Chase. Eng & Contr 45:350-2 Ap 12 '16
 Chicago's Bubbly Creek will bubble no more. il map Eng N 76:725-7 O 19 '16
 Completion of the sewerage system of Baltimore. G. J. Requardt. il Eng N 76:736-7 O 19 '16
 Design and construction of tanks for temporary storage of storm water at Toronto, Ontario. W. G. Cameron. diags Eng & Contr 45:90-1 Ja 26 '16
 Electrically driven machinery in sewer construction at Salt Lake City, Utah. B. W. Mendenhall. il Eng & Contr 45:16-18 Ja 5 '16; Same cond. Elec W 66:1319-21 D 11 '15; Same cond. Munic Eng 50:91-3 Mr '16
 Elevation of low-level streets on Pittsburgh river front. C: M. Reppert. il diags Eng N 75:154-7 Ja 27 '16
 Estimating quantity of ground water in designing Milwaukee's intercepting sewers. C. H. Nordell. Eng & Contr 45:367 Ap 19 '16
 Excavation methods on large sewer contracts. il Munic Eng 51:28-30 Jl '16
 Fall River concrete conduits—special reference to a three-level conduit of unique design. F: H. Fay. diags Eng & Contr 45:238-41 Mr 8 '16

Handling pipes and conduits in sewer trenching. Eng N 75:562 Mr 23 '16
 House connections as factor in infiltration. W. W. Dixon. Eng & Contr 46:132 Ag 9 '16
 Improvement of Quequechan river in Fall River, Mass. plan Munic Eng 49:218-19 D '15
 Inverted sewer siphons under New York subway. S. D. Bleich. plan Eng N 76:442-3 S 7 '16
 Large Baltimore drain has multiple harbor outlet. diags Eng Rec 72:738 D 11 '15
 Methods and cost of making surveys for sewers. A. M. Wolf. Eng & Contr 46:47 Jl 12 '16
 Misuse of drainage systems as sanitary sewers. L. Higgins. Sci Am S 82:23 Jl 8 '16
 Segmental sewer in Oakdale, Ky. G. D. Crain, jr. il Munic J 40:649-50 My 11 '16
 Sewage disposal problem confronting the city of Philadelphia. W. L. Stevenson. diags map Boston Soc C E J 3:345-62 S '16; Excerpt (Intercepting device for Frankford creek high level sewer). Eng & Contr 46:324-5 O 11 '16
 Sewage works and outfall for Lakewood, Ohio. il Eng N 76:793-4 O 26 '16
 Sewer house connections. C. G. Wigley. Munic J 40:689-90 My 13 '16
 Sewer system without manholes or records, St. Augustine, Fla. C. E. Henderson. il Munic J 41:151-2 Ag 10 '16; Same cond. Eng Rec 74:599-600 N 11 '16
 Standard sewerage units. Munic J 41:38, 72 Jl 13-20 '16
 Storm-water drainage sinks at Phoenix, Ariz. diags Eng N 75:931 My 18 '16
 Yard and area drains. J. Graham. diags plan Dom Eng 73:326-7 D 11 '15
See also Drainage; House; Plumbing; Sanitary engineering; Sewage disposal; Sewage pumping; Sewer cleaning; Sewer design; Sewer explosions; Sewer pipes; Sewers, Concrete; Trade waste

Catch basins

Catchbasins and culverts on county roads. diags Eng N 76:209 Ag 3 '16
 Corner inlet, catchbasin and curbing at Pueblo. diags Eng N 76:77 Jl 13 '16
 Evolution of the catch basin. E: S. Rankin. il Munic J 41:353-4 S 21 '16
 Hydraulic ejectors for grit removal merit trial in sewer maintenance. J: H. Gregory. il diags Eng Rec 73:141-2 Ja 29 '16
 Reinforced-concrete curb inlet, San Antonio, Tex. diags Eng N 76:1042 N 30 '16
 Yard and area drains. J. Graham. diags plan Dom Eng 73:326-7 D 11 '15

Cost

Aids to estimating the cost of vitrified pipe sewers. W. G. Kirchoffer. Eng N 76:780-2 O 26 '16
 Cost of various sewage treatment plants in Illinois. Eng & Contr 45:185 F 23 '16
 Grit chamber and pump station, Albany sewerage-works. J: H. Gregory. Eng N 75:1227 Je 29 '16
 Method and cost of remodeling the Lake Forest, Ill., septic tank into a modern two-story settling tank. N. N. Campbell. diags plans Eng & Contr 45:284-6 Mr 22 '16
 Municipal sewer construction in Moose Jaw, Saskatchewan. Munic Eng 50:133-4 Ap '16

Failures

See Sewer failures

Finance

Inconsistencies shown in water and sewer laws. C. A. Emerson, jr. Eng Rec 74:420 S 30 '16
 Inconsistencies shown in water and sewer laws. W. L. Butcher. Eng Rec 74:284-5 S 2 '16
 Making water consumers pay for sewer service. Eng N 76:512 S 14 '16
 Privately financed sewer system for small town produces \$2,000 yearly revenue. H: W. Taylor. Eng Rec 73:45-6 Ja 8 '16

Laws and regulations

Liability for defective sewers. J: Simpson. Munic J 40:437-8 Mr 30 '16

Sewerage—Laws and regulations—*Continued*

New rules governing the handling of water pipes and other underground utility structures encountered in excavating sewer trenches in Chicago. Eng & Contr 45:288 Mr 22 '16

Texas sewage-works activity. Eng N 75:980-1 My 25 '16

Valuation

Arbitration by engineers saves time and money in sewer-valuation case. F. Gannett. Eng Rec 74:107 J1 22 '16

Sewers. See Sewerage**Sewers, Brick**

Brick and tile sewers cracked under same loading. il Eng N 76:557-8 S 21 '16

Chicago's Norwood park sewer. il map Munic Eng 51:175-7 N '16

First tile sewers in St. Louis compared to brick. B. Moreel. il diags plan Eng N 76:1024-6 N 30 '16

Plant and methods for large size brick sewer construction in Chicago. il Eng & Contr 46:37-9 J1 12 '16

Sewers, Concrete

Belt conveyor deposits wet concrete into sewer forms. il Eng Rec 74:571 N 4 '16

Building relief and outlet sewers at Chicago. il diags map Eng N 75:212-14 F 3 '16

Combination sewer and street pavement base. diags Eng & Contr 46:419 N 8 '16

Combined culvert, sidewalk and curb at Ann Arbor, Mich. il Concrete 9:159 N '16

Concrete pipe for sewers. Concrete 8:87-8 F '16

Concrete sewer construction in Canada. diags Concrete 9:18 J1 '16

Concrete sewer construction in South Bend, Ind. W. E. Graves. Eng & Contr 45:137-8 F 9 '16

Constructing a large concrete sewer at Chicago. diags map Eng N 74:1224-5 D 23 '15

Constructing a 10-ft. concrete storm-water sewer, Columbus, O. il diag Eng N 74:1182-3 D 16 '15

Design and construction of an intercepting drain to protect the surface water supply of Fall River, Mass. H. K. Barrows. il diags Eng & Contr 45:60-3 Ja 19 '16

Double sewer construction, using portable culvert forms. il Eng & Contr 45:593 Je 23 '16

Durability of concrete pipe. J. H. Libberton. Eng & Contr 45:277 Mr 22 '16

Failures in a 6-ft. concrete sewer at Cairo, Ill. diags Eng N 75:595 Mr 16 '16

Gantry cranes work on sewer at Salt Lake City. il Eng N 76:97 J1 20 '16

Installing concrete sewer lines with electric driven machinery. L. R. W. Allison. il Concrete 9:47-8 Ag '16

Irrington's south side storm sewer. il Munic J 40:429-30 Mr 30 '16

Is concrete a good sewer material?—let 49 municipal engineers answer. Concrete 8:76-80 F '16

Laying concrete in polar weather. W. E. Hardenburg. Munic J 40:195-6 F 10 '16

Methods and cost of constructing a 60-in. reinforced concrete sewer. E. W. Robinson. diags Concrete 8:195-6 My '16

Methods of concrete sewer construction. J. F. Springer. il Munic Eng 51:47-52 Ag '16

Needle-beam heading method applied to sewer tunnel in dry ground. il Eng Rec 73:324-5 Mr 4 '16

Novel reinforced concrete sewer viaduct. F. C. Perkins. il Eng & Contr 46:410 N 8 '16

Scarcity of steel results in plain concrete for sewers. diag Eng N 75:903 My 11 '16

Sewer gas affects concrete above water line in Chicago sewer. E. Brooks. il diag Eng N 76:486-7 S 14 '16

60-in. monolithic concrete storm sewer at Houston, Texas. G. L. Fugate. il diags Concrete 8:247-50 Je '16

Storm sewer construction at Dayton. diag Eng & Contr 45:491 My 31 '16

Stringham creek storm and sanitary sewers, Oshkosh, Wisconsin. D. Whitman. il diag Concrete 9:52 Ag '16

Wheeled mixing plant and travelers build sewer rapidly. E. Novak. il Eng Rec 73:261-2 F 19 '16

Cost

Storm sewers under sidewalks. Munic J 41:257-8 Ag 31 '16

Sewers, Vitrified brick

Brick and tile sewers cracked under same loading. il Eng N 76:557-8 S 21 '16

Construction of vitrified clay segment block sewers. J. M. Egan, jr. Eng & Contr 45:260-1 Mr 15 '16

Experiences with and suggested specifications for vitrified segment block sewers. W. Danforth. Eng & Contr 44:464 D 15 '15

First tile sewers in St. Louis compared to brick. B. Moreel. il diags plan Eng N 76:1024-6 N 30 '16

Hollow-tile sewers built at Clinton, Iowa. il Eng N 76:634-5 O 5 '16

Sewer tunnel lined with vitrified blocks. A. C. Remley. il Munic J 40:507-9 Ap 13 '16

Sewers, Vitrified pipe

Aids to estimating the cost of vitrified pipe sewers. W. G. Kirchoffer. Eng N 76:780-2 O 26 '16

Building 22 mi. of pipe sewers under one contract. il diags Eng N 75:592-5 Mr 30 '16

Chicago's Norwood park sewer. il map Munic Eng 51:175-7 N '16

Vitrified pipe with asphaltic joints used as force main. J. B. Hawley. Eng Rec 74:619-20 N 18 '16

Sewing cabinets

Details of a sewing cabinet. diags Bldg Age 38:56-7 Ag '16

Sewing machines

Electric self-contained and easily portable sewing machine. il Elec R & W Elec'n 69:651 O 7 '16

Making parts for sewing machines. H. C. Estep. il Iron Tr R 58:331-7 F 10 '16

Sgraffito. See Graffiti decoration**Shackleford bill. See Post roads****Shackleton expedition. See Antarctic exploration****Shade trees. See Trees****Shadow pictures by parallel rays. P. Lindner. il Sci Am S 82:68 J1 29 '16****Shaft lining**

Concrete shaft lining: development of form handling and concrete placing methods. diags Eng & Contr 45:144-50 F 9 '16

Shaft sinking

Driving a 1,200-ft. raise. S. F. Eaton. diag Eng & Min J 102:461-4 S 9 '16

Grouting an effective remedy for stopping leakage during shaft sinking. J. F. Sanborn. Eng Rec 73:549-51 Ap 22 '16

Handling compressed air in shaft sinking. F. D. Buffum. diags Coal Age 92:56-8 Je 3 '16

Method of drop-shaft sinking on Cuyuna range. diag Eng & Min J 101:404 F 26 '16

Method of handling drills in shaft sinking. J. M. Brown. diag Eng & Contr 44:449 D 8 '15

New record in mine-shaft work. Eng Rec 74:613 N 18 '16

New York subway's largest elevator shaft sunk under Forty-second street. diag Eng Rec 74:285-6 S 2 '16

Procedures that reduced costs in sinking four inclined mine shafts in Ontario, Canada. A. E. Hull. diags Eng & Contr 46:261-4 S 20 '16; Same cond. (Three shaft-sinking methods). Eng & Min J 101:774-5 Ap 26 '16

Rapid shaft-sinking with suspended bulkhead. W. Fitch, jr. diag Eng & Min J 102:903 N 18 '16

Shaft-sinking in Norway. Eng & Min J 101:600-1 Ap 1 '16

Shaft sinking through soft material. E. A. Sayre. diags Am Inst Min E Bul 117:1523-30 S '16; Same. Eng & Contr 46:259-61 S 20 '16

Sinking a shaft by dredging through springs and gas. il Eng N 76:374-5 Ag 24 '16

Sinking a shaft in rock 180 feet per month. plan Eng N 75:278 F 10 '16

Shaft sinking—Continued

- Sinking the Wallenberg shaft. L. D. Cooper. *il Eng & Min J* 102:811-14 N 4 '16
 Sinking the Woodbury shaft, Ironwood, Mich. J. M. Broan. *diag Eng & Min J* 101:521-3 Mr 18 '16
 Skin-friction data on shaft sinking in Chicago. *Eng Rec* 74:108 JI 22 '16
 Steel-lined shaft in water-bearing sand. *diag Eng N* 75:1237 Je 29 '16
See also Drilling and boring (earth and rocks); Mine shafts; Mining engineering

Shafting

- Aligning the propelling shafting of ships. N. I. Mosher. *il plan Mach* 22:419-20 Ja '16
 Critical speeds of shafts. W. M. Wallace. *diags Engineer* 121:495, 518-19, 539-40 Je 16-30 '16; *Abstract. Am Soc M E J* 38:673-4 Ag '16
 Moving countershafting easily. *il Factory* 17:206+ Ag '16
 Supporting shafting in concrete buildings. C. C. Leech. *diags Ry Mech Eng* 90:40-1 Ja '16
 Whirling speed of shafts. W. M. Wallace. *Engineer* 122:113-15, 184, 203-4 Ag 11, S 1-8 '16
See also Belting; Pulleys

Safety devices and measures

- Preventive appliances. *diags Am Ind* 16:supl-4 Je '16

Shafts

- Bending of a shaft having two bearings; abstract. J. Cabrol. *Am Soc M E J* 38:185-6 F '16
 Circular slide-rule for shaft designers. E. S. Oberndorf. *diag Mach* 22:792-3 My '16
 Shafts for torsional stiffness. B. D. Pinkney. *Mach* 22:794 My '16
 Tests of shaft grinding surface speed. H. H. Asbridge. *Iron Age* 97:52 Ja 6 '16
 Using dynamite. *Eng & Min J* 102:425 S 2 '16
See also Crankshafts; Shaft sinking

Shafts, Mine. See Mine shafts**Shagbark hickory. See Hickory****Shaking machine**

- Extending the usefulness of a shaking machine. R. M. Chapin and J. M. Schaffer. *diags J Ind & Eng Chem* 8:921-2 O '16

Shale oil. See Oil shales**Shark liver oil**

- Highly unsaturated hydrocarbon in shark liver oil. M. Tsujimoto. *il J Ind & Eng Chem* 8:889-96 O '16

Sharks

- Sharks, man-eating and otherwise. *il Sci Am* 115:103 JI 29 '16

Sharon, Pennsylvania

- Steel maker gives farm to Sharon. C. F. Williams. *il Iron Tr R* 59:324-5 Ag 17 '16

Sharpening

- Drill- and tool-sharpening shop at the Copper Queen mine. *il diags Eng & Min J* 101:1099-1104 Je 24 '16
 Progress in machine shop methods. E. R. Norris. *Iron Tr R* 57:749 O 14 '15; *Excerpt (Re-sharpening of files). Iron Age* 96:1175 N 18 '15; *Same. Metal Work* 84:743 D 10 '15
 Sharpening and relieving hobs. P. J. Visco. *diags Mach* 22:895 Je '16

Sheadle, Jasper H., 1859-1916

- Sketch. *por Iron Age* 98:720 S 28 '16; *Iron Tr R* 59:645 S 28 '16

Shears

- Air cylinder increases metal shear capacity. *il Elec Ry J* 48:1027 N 11 '16
 Hand-operated punching and shearing machines. *il diags Engineer* 121:202-3 Mr 3 '16
 Largest rotary shear driven by 50-hp. induction motor. *il Elec W* 66:1266 D 4 '15

Sheave wheels

- How sheaves are molded in an English shop. J. Horner. *diags Foundry* 44:93-6 Mr '16
 New sheave lining. *diag Eng & Min J* 101:356 F 19 '16
 New type of sheave. *diag Coal Age* 8:933-4 D 4 '15
 Proper diameter of sheaves for hoisting rope. *Coal Age* 8:964 D 11 '15

Sheboygan, Wisconsin**Lighting**

- Street lighting system of Sheboygan. C. H. Shaw. *il diag Elec W* 68:464-5 S 2 '16

Shedd, Joel Herbert, 1834-1915

- Pioneer municipal engineer. O. P. Sarle. *por Eng N* 75:55 Ja 13 '16

Sheep

- Sheep campaign develops. *Textile World* 51:3889+ S 9 '16
 To promote sheep raising; Philadelphia wool and textile association to conduct campaign. *Textile World* 51:1058-9 F 12 '16
See also Wool

Sheet metal

- Observations upon the atmospheric corrosion of commercial sheet iron. E. A. Richardson and L. T. Richardson. *il Met & Chem Eng* 15:450-3 O 15 '16; *Conclusions. Iron Age* 98:778 O 5 '16; *Conclusions. Metal Work* 86:584 N 10 '16
 United States standard gage and hot rolled steel sheets. *Metal Work* 86:460 O 13 '16
See also Roofing; Tin plate

Sheet metal contractors

- Lectures for sheet metal contractors. *Metal Work* 85:304-6, 345-6, 382-3, 406, 465-6, 547, 642-3, 779-80 Mr 3-Apr 7, 21, My 12, Je 9 '16
 Overhead for sheet metal contractors. L. Luckhardt. *Metal Work* 86:531-2 O 27 '16

Sheet metal contractors associations

- Aims and objects of the association. G. Harms. *Metal Work* 85:668-9 My 19 '16
 Chicago sheet metal contractors meeting, Dec. 7. *Metal Work* 84:780 D 17 '15
 Illinois sheet metal trade meets in Chicago, April 5-6. *Metal Work* 85:327-31 Ap 14 '16
 Michigan sheet metal contractors' 5th annual convention, Saginaw, March 8-9. *Metal Work* 85:391-2 Mr 17 '16
 Ohio master sheet metal contractors' association, 2d annual convention, Cincinnati, July 25-27. *Metal Work* 86:156-9 Ag 4 '16
 St. Louis sheet metal contractors meeting, Dec. 7. *Metal Work* 84:786 D 17 '15
 Wisconsin sheet metal contractors meet. *Metal Work* 85:419-20 Mr 24 '16
See also National association of sheet metal contractors

Sheet metal shops

- Light shop for furnace and cornice work. *il Metal Work* 86:182 Ag 11 '16
 Sheet metal shop plan. *plans Metal Work* 85:354 Mr 10 '16

Sheet metal trade

- Association development and member's activity. G. E. Kohlmeier. *Metal Work* 85:184+ F 4 '16
 Metal, tin-plate and sheet prices for eighteen years; with supplement. *Iron Age* 97:22 Ja 6 '16
 Movement to develop sheet metal trade. *Metal Work* 85:252-3+, 307, 344-5, 546-7 F 18, Mr 3-10, Ap 21 '16
 National hardware association metal branch annual convention, Pittsburgh, Pa., June 2-3. *Metal Work* 85:786-9 Je 9 '16
 Opportunities for sheet metal contractors. F. B. Hiller. *Metal Work* 85:138-9 Ja 21 '16
 Prices of galvanized sheets from 1898 to 1916. *Iron Age* 98:403 Ag 24 '16
 Purchasing suggestion; how to buy sheet-metal products. *Iron Age* 98:892-3 O 19 '16; *Same. Metal Work* 86:532-3 O 27 '16
 Sales talk for sheet metal tradesmen. *il Metal Work* 86:429-30 O 6 '16
 Sheet and tin-plate trades in 1915. B. E. V. Luty. *Iron Age* 97:11-12 Ja 6 '16
 Sheet metal trade development. *Metal Work* 84:780, 818 D 17-24 '15

Advertising

- Advertising of the Wisconsin sheet metal contractors association. *Metal Work* 85:444-5 Mr 31 '16
 Building sheet metal business by example. H. A. Daniels. *Metal Work* 85:879-80 Je 30 '16
 Persistent advertising builds business. *Metal Work* 85:438-40 Mr 31 '16

Sheet metal work

- Bending sheet metal for metal furniture. K. G. Selander. diags Mach 22:473-4 F '16
 Channeling and channeling machines. C. L. Lucas. il diags Mach 22:453-8 F '16
 Collapsible aluminum cup. J. P. Sheehy. il diags Metal Ind n s 13:489-92 D '15
 Commercializing cartridge case manufacture. il diags Mach 23:40-6 S '16
 Forming sheet metal by the rolling process. il diags Mach 22:850-1 Je '16
 How enameled kitchen ware is made. il plan Iron Tr R 59:1091-7 N 30 '16
 New features in a steel stamping plant. il plan Iron Age 97:649-51 Mr '16
 Oxy-acetylene welding practice. S. W. Miller. diags Mach 22:404-6 Ja '16; Same. Sci Am S 81:202-3 Mr 25 '16
 Portland, Ore. code for sheet metal workers. Metal Work 86:309 S 8 '16
 Putting bottom on sheet metal tank. Metal Work 85:464+ Ap 7 '16
 Sheet metal features of steam heating plant. il Metal Work 86:621-2 N 17 '16
 Sheet metal work in Maine in winter-time. il Metal Work 85:775-6 Je 9 '16
 Sheet metal workers' modern machine tools. il diags Metal Work 85:51-5 Ja 7 '16
See also Boilers; Brass work; Cartridge cases; Dies; Metal spinning; Punching machinery; Rolling mills; Shells (projectiles); Tanks; Tin plate; Tubes; Zinc

Pattern making

- Compound elbows in rectangular piping. diags Metal Work 86:581-2 N 10 '16
 Construction of sheet metal coal hods. diags Metal Work 86:206-8 Ag 18 '16
 Developing a pattern for boiler cover. diag Metal Work 86:101 JI 28 '16
 Developing patterns for a milk strainer. il diags Metal Work 85:581 Ap 28 '16
 Fireproof and puttyless monitor skylight. diags Metal Work 85:277-80, 342-3, 544-5 F 25, Mr 10, Ap 21 '16
 Laying out an eccentric elbow. M. W. Ward. Power 42:828 D 14 '15
 Making a center piece. W. Neubecker. diags Metal Work 86:553-5, 648-9 N 3, 24 '16
 Making a sanitary milk pail for dairymen. diags Metal Work 85:639-41 My 12 '16
 Making an electric star of sheet metal. W. Neubecker. il diags Metal Work 86:102-3 JI 28 '16
 Making elbow in square pipe. E. C. Chappelle. diags Metal Work 86:278 S 1 '16
 One-piece cap for stove pipe. diags Metal Work 85:320 Mr 3 '16
 Pattern for a square sheet metal funnel. diags Metal Work 86:177-8 Ag 11 '16
 Pattern for a Y developed by radial lines. diag Metal Work 86:45 JI 14 '16
 Patterns developed for blower outlet. diags Metal Work 85:845-8 Je 23 '16
 Patterns for circular veranda gutters. il diags Metal Work 84:739-40 D 10 '15
 Short methods for making full size patterns. W. Neubecker. diags Metal Work 84:793-4, 831-2, 85:123-4, 229 D 24-31 '15, Ja 21, F 11 '16

Study and teaching

- Sheet metal instruction in high schools. Metal Work 86:322 S 8 '16

Sheet metal work, Architectural

- Construction details for sheet metal cross. diags Metal Work 84:774-5 D 17 '15
 Home instruction for sheet metal workers. W. Neubecker. Metal Work 81:97, 166-7, 332-3, 389-90, 456+, 524-5; 681-2, 718-19; 82: 457+, 615-16, 667-8; 83:498-9, 665-7, 810+; 84:171-3, 297-8, 423-4, 581-2, 702-4+; 85:181-3, 303-4, 463-4, 603-5, 733-5, 877-9; 86:77-8, 143-5, 276-7, 373-4, 499-500, 553-5, 648-9, Ja 9, 23, F 27, Mr 13, 27, Ap 10, My 22-29, O 2, N 6, 20 '14, Ap 2, My 7, Je 4, Ag 6, S 3, O 1, N 5, D 3 '15, F 4, Mr 3, Ap 7, My 5, Je 2, 30, JI 21, Ag 4, S 1, 22, O 20, N 3, 24 '16
 Making sheet metal chimney tops. L. S. Bonbrake. diags Metal Work 86:669-70 D 1 '16
 Marquise construction for entrance canopy. diags Metal Work 86:333-6 S 15 '16

- Use of sheet metal on farm buildings. il Bldg Age 38:67-9 N '16

See also Gutters (roof)

Estimates

- Estimating quantities in sheet metal work. diags Metal Work 85:8-10, 153-4, 250-1, 521, 702-3, 813-14, 86-9, 235-7, 304-6, 427-8, 524-6, 619-20 Ja 7, 28, F 18, Ap 14, My 26, Je 16, JI 7, Ag 25, S 8, O 6, 27, N 17 '16

Sheet metal workers

- Sheet metal workers in the making. O. E. Cluss. Metal Work 85:126 Ja 21 '16

Sheet piling

- British example of large cofferdam construction of steel sheet piling. F. C. Perkins. il Eng & Contr 45:470 My 24 '16
 Charts tell weight of sheeting for round or box cofferdams. N. G. Near. Eng Rec 74:451-2 (4) 7 '16
 Cinders make steel sheeting tight in swift current. il Eng N 76:558-9 S 21 '16
 Concrete-capped sheetpile dam for Erie canal. E. Low. il diags Eng N 75:1121-2 Je 15 '16
 Connecting Narrows siphon to Staten Island main. il diags Eng N 76:782-5 O 26 '16
 Cylinder pier foundations laid inside sheetpile wells. C. S. Boardman. il diag plan Eng N 76:289-93 Ag 17 '16
 Fishhook ties for sheet pile trench. diags Eng Rec 73:526 Ap 15 '16
 How variety of sheet-pile structures can be made watertight. C. O. Johnson. Eng Rec 74:391-2 S 23 '16
 Interlocking wood sheet piles. il diag Eng N 75:693 Ap 13 '16
 Inverted hammers pull 72-foot sheeting at New York pier. C. W. Staniford. il Eng Rec 74:627-8 N 18 '16
 Martinez interlock wood sheet piling. il Ry Age 60:1326 Je 16 '16
 Master piles eliminate rangers in deep steel sheet-pile trench. il diags Eng Rec 73: 513-14 Ap 15 '16
 Method and cost of treating sheet piles exposed to sea water with avenarius carbolineum. W. D. Jones. il Eng & Contr 46: 82-3 JI 26 '16
 Method of making closure in steel sheet piling. S. A. Swanson. diag Eng & Contr 46:288 S 27 '16
 New section of Lackawanna straight web steel sheet piling. diag Ry R 59:59 JI 8 '16; Iron Age 97:1545 Je 29 '16; Iron Tr R 59:30 JI 6 '16; Ry Age 61:102 JI 21 '16; Eng & Contr 46: 173-4 Ag 23 '16
 Pile hammer for steel piles. D. A. Watt. diags Eng N 76:609 S 28 '16
 Practical closure sheet for single wall steel sheet pile cofferdams. C. O. Johnson. diag Eng & Contr 46:174 Ag 23 '16
 Pulling steel sheetpiles from earth-filled cofferdam. D. A. Watt. diag Eng N 76:408 Ag 31 '16
 Recovering steel sheetpiling. Eng N 76:612-13 S 28 '16
 Sheet piling a remedy for soft spots in wet cuts. E. L. Sinclair. diags plan Eng Rec 73: 72-3 Ja 15 '16
 Shore end of Narrows siphon built in open trench dredged to depth of 50 ft. il diags Eng Rec 73:552-4 Ap 22 '16
 Steel sheetpile coffer-dam for lock on Cape Fear river. Eng N 76:549 S 21 '16
 Steel sheetpile coffer-dams for Troy lock and dam. D. A. Watt. il diags plans Eng N 76: 533-40 S 21 '16
 Steel sheet piles. J. F. Springer. il diags Munic J 41:347-50, 378-81 S 21-28 '16
 Stresses in sheet piling. Engineer 122:127, 139 Ag 11-18 '16
 Wood sheet piles jetted into hard pan with 400 pounds pressure. K. D. MacLean. il Eng Rec 73:686 My 20 '16

Sheeting

- Back-filling sheetings. diags Textile World 51: 1225 F 26 '16

Shells

- Drawing metal by hydraulic method. G. R. Smith. il diag Iron Tr R 59:213 Ag 3 '16

Shells (projectiles)

Effects of shell fire; how the various kinds of projectiles work. il Sci Am S 80:381 D 11 '15
Fuses for shells. Sibley J 30:177-8 F '16

Shells of the calibers now in service. C. A. Tupper. Iron Age 96:1045-8 N 4 '15; Same (War projectiles.) Sci Am S 81:342-3 My 27 '16

Submarine "curtain of fire." Sci Am 114:94 Ja 22 '16

Table for counting shells. J. H. Crary. diag Mach 22:797 My '16

See also Projectiles; Shrapnel shells

Cost

Cost and profit in shells approximated. E. Moore. diag Iron Age 97:994-5 Ap 27 '16

Cost of high-explosive shells. Mach 22:841 Je '16

Cost of shells. Iron Age 97:651 Mr 16 '16

Manufacture

Artificial gas-fired furnace installation; Eddy-stone ammunition corporation, Eddystone, Pa. C. E. Richardson. il diag J Ind & Eng Chem 8:911-14 O '16

Ball bearings in lathe construction. il Ry Mech Eng 90:538-9 O '16

Cast iron for explosive shells. Sci Am S 81:55 Ja 22 '16

Casting 8-in. H. E. shell ingots and forging the rough shells; abstract. Am Soc M E J 38:754 S '16

Casting high-explosive shells. Iron Age 98:575 S 14 '16

Copper band turning lathe. M. Jenckes. il Metal Ind n s 14:353 Ag '16

Detonating fuses for high-explosive shells. D. T. Hamilton. il diag Mach 22:314-19 D '15

Forging high-explosive shells. D. T. Hamilton. il diag Mach 22:278-81 D '15

German shells and the influence of certain elements on the physical properties of steel. J. E. Stead. il Engineer 121:43-4 Ja 14 '16; Same cond. Iron Age 97:536-7 Mr 2 '16

Gisholt machine co. shell lathe has improved features. il Iron Tr R 59:684 O 5 '16; Iron Age 98:768 O 5 '16

Grinding gas plugs for shrapnel shells. il Iron Age 96:1282-3 D 2 '15

High-explosive shell cartridge cases. D. T. Hamilton. il diag Mach 22:320-9 D '15

High-explosive shell manufacture. D. T. Hamilton. il diag Mach 22:265-77 D '15; Same cond. Sci Am S 81:212-13 Ap 1 '16

High-explosive shell marking machine. il Iron Age 96:1353 D 9 '15

Horne-Dale-Brown shell manufacturing machinery. il diag Mach 22:704-6 Ap '16

Hydraulic cartridge case heading press. il Iron Age 96:1360 D 9 '15

Inspection lamp for shell work. il Engineer 120:486 N 19 '15

Inverted projectile boring machine. il Iron Age 97:995 Ap 27 '16

Jenckes band turning machine. diag Mach 22:432-3 Ja '16

Large Noble & Westbrook shell marker. il Mach 22:525 F '16; Iron Age 97:253 Ja 27 '16

Machine for cutting powder train groove. D. Baker. diag Mach 22:787-8 My '16

Machine for routing shell fuse heads. il Iron Age 96:1467 D 23 '15

Machines for routing powder grooves. il Iron Age 98:188-9 JI 27 '16

Machining high-explosive shells. D. T. Hamilton. il diag Mach 22:282-313 D '15

Machining 9.2-in. high-explosive shells. G. F. Bryant. diag Iron Age 98:238-40 Ag 3 '16

Making the 6-in. British high-explosive shells. diag Iron Age 97:65-8 Ja 6 '16

Manufacture of detonating fuses for high explosive shells; metal working by means of automatic machinery. il diag Metal Ind n s 14:293-5 JI '16

Manufacture of high explosive shells in France. diag Engineer 121:143-5 F 18 '16

Manufacture of shell forgings. diag Engineer 120:606-7 D 24 '15

Metals and gas. il Metal Ind n s 14:325-9 Ag '16

Mobilization of material and industrial resources. A. L. Humphrey. il diag Eng Soc W Pa 32:381-432 Je '16; Same cond. Iron Age 98:234-8 Ag 3 '16; Same cond. Ry R 58:882-5 Je 17 '16

National projectile factory. il (supp) diag plans Engineer 122:47-9, 67-9 JI 21-28 '16; Same cond. Iron Age 98:300-1, 352-4 Ag 10-17 '16

Production of 8-in. and 9.2-in. shells. C. A. Tupper. diag Iron Age 97:421-4 F 17 '16

Quenching machine. il Iron Age 98:763 O 5 '16

Reed-Prentice shell lathe. il Mach 22:821-2 My '16

Root & Van Dervoort line of shell machinery. il Mach 22:701-4 Ap '16

Shell machining equipment. il diag Engineer 121:253-6 Mr 24 '16

Shell making tools. il diag Engineer 121:180-1 F 25 '16

Shell nose screwing-on machine. il diag Engineer 122:286 S 29 '16

Shell turning attachment. G. Armstrong. diag Mach 22:795-6 My '16

Shell turning attachments for lathes. il diag Iron Age 97:474-5 F 24 '16

Single purpose machines in shell making. C. A. Tupper. diag Iron Age 96:1288-91 D 2 '15

Special machines for making fuse parts. il diag Mach 23:65-72 S '16

Surface combustion shell heat-treating furnaces. il Mach 23:76-7 S '16

Symington line of special shell manufacturing machinery. il diag Mach 22:526-30 F '16

Three-cutter boring head for shells. il Iron Age 98:769 O 5 '16

12-in. howitzer in national defense. C. A. Tupper. diag Iron Age 97:838-40 Ap 6 '16

Typical tools and devices from Canadian shell shops. Am Soc M E J 38:182 F '16

Universal horizontal routing machine. by George Gorton machine co. il Iron Age 97:943 Ap 20 '16

Warren shell nose-turning machine. il Mach 22:807-8 My '16

Specifications

French specifications for shell steel. Iron Age 98:450-1 Ag 31 '16

Testing

Eccentricity testing device for shell forgings. diag Mach 22:1082 Ag '16

Weighing

Automatic scale for shells. il Engineer 120:486 N 19 '15

Shells, Shrapnel. See Shrapnel shells

Shepard, Henry Olendorf, b. 1848

Tributes to printers. Inland Ptr 57:529-30 JI '16

Sherardizing. See Galvanizing

Sherman anti-trust law

Fear of trade combinations groundless. Metal Work 85:617 My 5 '16

Shields

Fabric shields for protecting soldiers against shrapnel and bullets. il Sci Am 115:176 Ag 19 '16

Reversion to shields in warfare of to-day. Sci Am 114:407 Ap 15 '16

Shingles

Directions for laying metal shingles. il Metal Work 86:293 S 1 '16

Does the menace of the wood shingle justify its abolition? T. W. Haney. Metal Work 86:583-4 N 10 '16

Making hand-rived cypress shingles. il Bldg Age 38:65-6 N '16

New method renders wooden shingles fire retardant. Eng Rec 72:717 D 11 '15

Shingles, Asbestos

Asbestos shingles for farm barns. il Bldg Age 38:77-8 N '16

Shingling

Aspects of modern shingling. E. H. Crussell. il Bldg Age 38:37-8 Mr; 34-6 Ap; 27-8 My; 27-8 Je; 27-9 JI; 51-3 Ag; 49-52 S; 27-9 O; 27-9 D '16

Breaking joints in laying asphalt shingles. Bldg Age 38:54-5 My '16

Shingling—Continued

- Comments on shingling. J: Upton. Bldg Age 38:55-6 Ag '16
Shingling on the Pacific coast. diag Bldg Age 38:58 Ap '16

Ship-building. See Shipbuilding**Ship propulsion**

- Aligning the propelling shafting of ships. N. I. Mosher. il plan Mach 22:419-20 Ja '16
Alternative designs of propelling machinery for a 19½-knot steamer; abstract. J. Dornan. Int Marine Eng 21:86 F '16
Description of main propelling machinery for the U. S. S. Maumee; abstract. C. W. Nimitz. Am Soc M E J 38:85 Ja '16
Determination of the principal dimensions of marine reciprocating propelling machinery. T. S. Cockrill. Engineer 121:320-1 Ap 14 '16
Economic marine propulsion. T: J. Rogers. Int Marine Eng 21:316-17 Jl '16
Efficiency of propulsive machinery and late developments in naval engineering. H. C. Dinger. Am Soc M E J 38:767-74 O '16
Future of ship propulsion. Sci Am S 81:314-15 My 13 '16
Geared turbine and the turbo-electric systems of marine propulsion. J: H. Macalpine. diag Int Marine Eng 21:4-8 Ja '16
New Luckenbach freight steamers. Int Marine Eng 21:162 Mr '16
Propelling machinery for ships. W. J. Drummond. Sci Am S 82:234-5 O 7 '16; Abstract. J Fr Inst 181:720-2 My '15
Propelling machinery. S. S. Yuna; diagrams. Int Marine Eng 21:323 Jl '16
Trials of geared turbine propelling machinery on freight steamer Pacific. Int Marine Eng 21:159-60 Mr '16
United States battleship Nevada. il plan Int Marine Eng 21:155-9 Mr '16
Westinghouse geared turbine machinery for single screw tank steamer. il diag plans Int Marine Eng 21:366-77 Ag '16

See also Boilers, Marine; Diesel engines, Marine; Marine engines; Motor ships; Propellers; Ship resistance; Steam turbines, Marine; Steamboats

Ship propulsion. Electric

- Comparisons relating to electric propulsion of a battleship. W. L. R. Emmet. Int Marine Eng 20:545 D '15
Electric propulsion on a merchant vessel; Ljunstrom turbo-electric machinery installed on Swedish coastwise merchant steamer Mjölner. il diag plan Int Marine Eng 21:13-15 Ja '16
Electric ship progress. Engineer 121:456 Je 2 '16
Electric ship propulsion. W. L. R. Emmet. Power 41:657-8 My 11 '15; Abstract. Elec R & W Elec'n 66:826 My 1 '15; Abstract. Elec W 65:1139-40 My 1 '15; Abstract. Eng M 50:611 Ja '16
Electric turbine for battleships. D. A. Willey. il Am Ind 16:34-5 F '16
Electrically propelled battleship California. diag Elec W 66:1252 D 4 '15

See also Electricity on ships

Ship purchase bill

- Shipping bill. W. L. Stoddard. Ry Age 59:1063 D 3 '15

Ship resistance

- Calculations for ships' forms; ship resistance. O. W. Taylor. Int Marine Eng 20:443-5 O '15; Same. Sci Am S 81:182-3 Mr 18 '16
Canal and river barges. Engineer 122:262-3 S 22 '16; Same. Sci Am S 82:280-1 O 28 '16
Commercial advantages of tank tests with ship models. Sci Am S 82:100 Ag 12 '16
Determination of the resistance of ships. E. H. Rigg. Sci Am S 82:78-9 Jl 29 '16; Same cond. Engineer 120:536 D 3 '15
Model experiments. G. S. Baker. Engineer 120:548-9 D 10 '15
Principle of similitude in engineering design. T. E. Stanton. Engineer 122:356 O 20 '16
Resistance in a seaway. Engineer 121:112 F 4 '16
Variation of frictional resistance of ships with condition of wetted surface; abstracts. W: McEntee. Engineer 120:512 N 26 '15; Int Marine Eng 20:543-4 D '15

See also Ship propulsion

Ship subsidies

- Comprehensive subsidy legislation advocated. J. W. Powell. Int Marine Eng 21:98-9 Mr '16
Government aid to merchant shipping. G. M. Jones. U S Bur For & Dom Com 119:1-265 '16
President on our merchant marine. Sci Am 113:534 D 18 '15

Ship trials

- Trials of geared turbine propelling machinery on freight steamer Pacific. Int Marine Eng 21:159-60 Mr '16

Ship yards. See Shipyards**Shipbuilding**

- American shipbuilding. Engineer 122:237 S 15 '16
American shipbuilding boom. Engineer 122:307 O 6 '16
American shipbuilding company. Int Marine Eng 21:141-2 Mr '16
American ships for American trade. C. J. Stark. il Iron Tr R 58:35-7 Ja 6 '16
American shipyards and marine repair plants. Int Marine Eng 21:113 Mr '16
Baltimore shipbuilding plant reorganized. il Int Marine Eng 21:129-30 Mr '16
Bath's leading shipyard. il Int Marine Eng 21:118-19 Mr '16
California shipbuilding company. il Int Marine Eng 21:146 Mr '16
Comparison between pneumatic and electric portable drills and geared hoists. A. Bassi. Int Marine Eng 21:424 S '16
Data on hog and sag of merchant vessels. T. M. Cornbrooks. Int Marine Eng 20:547 D '15
Drafting room. Int Marine Eng 21:253 My '16
Drafting room in shipyards. H. C. Robinson. diag Int Marine Eng 21:11-12 Ja '16
Evolution in shipbuilding. A. C. Holzapfel. Sci Am S 81:130-1, 151 F 26-Mr 4 '16
Hall bros. shipbuilding and repair plant, Win-slow, Wash. il Int Marine Eng 21:147-8 Mr '16
Harlan & Hollingsworth corporation, Wilmington, Del. il Int Marine Eng 21:134-6 Mr '16
Huge plate and angle shop and mold loft complete at Fore river shipyard, Quincy, Mass. il Int Marine Eng 21:484-6 N '16
Large ship building shop at Quincy, Mass. il Iron Tr R 59:272-4 Ag 10 '16
New York shipbuilding company, Camden, N. J. il Int Marine Eng 21:121-2 Mr '16
Pressure on shipyards. Iron Age 98:1115 N 16 '16
Scantlings of vessels for inland waters. Engineer 120:484 N 19 '15
Scientific studies applied to riveting. W: M. Kennedy. Int Marine Eng 21:408-13+ S '16
Seattle construction and dry dock company. il Int Marine Eng 21:143-4 Mr '16
Shipbuilding and shipping situation; views of leaders in the marine field on business conditions and the upbuilding of the American merchant marine. Int Marine Eng 21:98-106 Mr '16
Ship building facilities; additions to the plant of the American ship co., Cleveland. F. A. Churchill, jr. il plans Iron Tr R 59:172-5+ Jl 27 '16
Shipbuilding on the Columbia river. Int Marine Eng 21:315 Jl '16
Shipbuilding on the Kennebec. Int Marine Eng 21:119 Mr '16
Shipbuilding resuming its old-time importance in American commerce and industry. J. G. Dorrance. il Sci Am 114:550-1 My 27 '16
Shipbuilding revival in the United States. Int Marine Eng 21:23-5 Ja '16
Spedden shipbuilding company. il Int Marine Eng 21:127-8 Mr '16
State socialism and our navy. L. W. Moffett. il Iron Tr R 58:116-18 Ja 6 '16
Staten Island shipbuilding company. Port Richmond, N. Y. il Int Marine Eng 21:122-3 Mr '16
Technical aspects of shipbuilding contracts; abstract. H. Bocler. Int Marine Eng 20:569-70 D '15
Thor pneumatic tools in shipyards and dry docks. il Int Marine Eng 21:504-6 N '16
Types of ships built in American yards. il Int Marine Eng 21:149-54 Mr '16

Shipbuilding—Continued

- Unprecedented prosperity of shipyards. Iron Age 9:320-2 Ja 20 '16
 Wooden shipbuilding on the Pacific coast. *il* Int Marine Eng 21:402-5, 407 S '16
 World's shipbuilding in 1915. Engineer 121:108 F 4 '16; Abstract. *il* Int Marine Eng 21:216 Ap 16
 Yield of riveted connections in shipbuilding. A. R. Liddell. Engineer 122:29-30 Jl 14 '16
See also Barges; Barges, Steel; Coaling vessels; Ferryboats; Freight ships; House boats; Launching; Marine engines; Motor boats; Motor ships; Naval architecture; Propellers; Ship propulsion; Ship resistance; Ships; Shipyards; Steamboats; Submarine boats; Tank ships; Torpedo boat destroyers; Towboats; Warships

Shipment of goods

- Accessories in South America. D: Beecroft. *il* Automobile 35:384-7 S 7 '16
 Securing shipping security. *il* diags Automobile 34:680-1 Ap 13 '16
 Who should pay various shipping charges? H. F. Baillet. Metal Work 86:154-5 Ag 4 '16
See also Automobiles—Shipment; Freight car service; Freight handling; Ore docks; Packing for shipment

Shipping

- Government aid to merchant shipping. G. M. Jones. U S Bur For & Dom Com 119:1-265 '16
 Ocean shipping. *il* Int Marine Eng 21:8 Ja '16
 Shipping losses of the warring nations. *il* Sci Am 115:372 O 21 '16
 Trans-Pacific shipping. J. Arnold. U S Bur For & Dom Com misc ser 44:1-30 '16
See also Coal handling; Commerce; Freight handling; Merchant marine; Ports; Private car lines; Salvage; Seamen's act; Ship subsidies; Shipbuilding; Shipment of goods; Ships; Steamboat lines; Steamboats; Terminals; Transportation

Great Britain

- Lloyd's register of shipping. Engineer 120:456 N 12 '15

Japan

- Japanese shipping. M. D. Kirjassoff. U S Bur For & Dom Com misc ser 44:24-30 '16

United States

- Expert shipping commission advocated. G: A. White. *il* Int Marine Eng 21:100-1 Mr '16
 Freight congestion at the Atlantic Seaboard. Ry Age 59:1052-3 D 3 '15
 Freight congestion at the port of New York. H. T. Wade. *il* Sci Am 113:554-5+ D 25 '15
 Merchant marine commission. Iron Age 97:321-2 F 3 '16
 New and constructive policy for upbuilding the American merchant marine. B. N. Baker. *il* Int Marine Eng 21:109-12 Mr '16
 Transportation and foreign trade; shipping board proposed. E. R. Johnson. Ry R 57:830-2 D 25 '15
See also Merchant marine—United States; Ship purchase bill

Shipping bill, 1916

- Analysis of the shipping bill. "Old Scotch." *il* Int Marine Eng 21:107-9 Mr '16
 House shipping bill. *Sci Am* 114:574 Je 3 '16
 What is to be expected of the shipping bill? "Old Scotch." *il* Int Marine Eng 21:439-40 O '16

Ships

- Economical method of removing ice from the deck and rigging of a vessel. *il* Int Marine Eng 21:253 My '16
 International demand for new ships. Engineer 121:318 Ap 14 '16
 Longitudinal stresses of ships. A. Liddell. Engineer 122:344-5 O 20 '16
 New apparatus for controlling a ship from the bridge. *Sci Am* 114:349 Ap 1 '16
 Voltaic corrosion and prevention. T: J. Rogers. *il* Int Marine Eng 21:250-1 My '16
See also Coaling vessels; Electricity on ships; Ferryboats; Freight ships; Hospital ships; House boats; Launching; Motor ships; Naval architecture; Navigation; Propellers; Refrigeration on shipboard; Repair ships; Safety at sea; Sails; Salvage ships;

Ship propulsion; Ship resistance; Ship trials; Shipbuilding; Shipping; Shipyards; Steamboat lines; Steamboats; Submarine boats; Tank ships; Torpedo boat destroyers; Towboats; Warships

Brakes

- Results of model tank experiments to determine the action of a ship brake. W: S. Smith. *il* Int Marine Eng 20:544-5 D '15
 Ship brake for quick stopping. Eng M 50:619 Ja '16

Engine rooms

- Engine-room floors. A. L. Haas. *il* Int Marine Eng 20:563 D '15

Equipment

- Forced feed lubrication aboard ship. *il* Int Marine Eng 20:565-6 D '15
 New marine refrigerating machine. G. L. Kothny. *il* diags plan *il* Int Marine Eng 20:550-6 D '15

See also Pallegraph

Interior decoration

- Interior decoration of vessels. H. B. Etter. *il* Int Marine Eng 20:545-7 D '15

Lighting

- Illumination in the navy. C. S. McDowell. *il* Illum Eng Soc 11:573-81 no 5 '16; Same cond. *il* Illum Eng 9:281-3 S '16; Discussion. *il* Illum Eng Soc 11:582-7 no 5 '16
 Lighting of a passenger steamer; with discussion. H. T. Spaulding. *il* diags *il* Illum Eng Soc 10:680-9 no 8 '15
 Lighting of ships; with discussion. H. A. Hornor. *il* *il* Illum Eng Soc 11:235-49 no 2 '16

Repair

- Removing a rivet from ship's bottom plating. W: S. Owen. *il* Int Marine Eng 20:563 D '15
 Repair costs of motor ships. *il* Int Marine Eng 21:51 F '16
 Robins dry dock and repair plant, Brooklyn, N. Y. *il* plan *il* Int Marine Eng 21:137-9 Mr '16
 Ship repair yards in New York harbor. *il* Int Marine Eng 21:139-40 Mr '16

See also Shipyards

Stability

- Active gyroscope as a ship stabilizer. R. G. Skerrett. *il* Sci Am 113:533+ D 18 '15
 Calculations for ship's forms; theory of rolling of ships. D. W. Taylor. *il* Int Marine Eng 21:216-50 My '16
 Experiments to determine the resistance of bilge keels to rolling. T. B. Abell. *il* diags Engineer 121:342-3 Ap 21 '16
 Method of estimating the stability required by a ship. A. R. Liddell. Engineer 120:452+ N 12 '15
 Recent progress with the active type of gyro-stabilizer for ships. E. A. Sperry. *il* Int Marine Eng 20:542-3 D '15
 Ship stability—the need for investigation. A. T. Wall. *il* Int Marine Eng 21:62-4 F '16
 Sperry active gyroscope for stabilising ships. *il* diags Engineer 122:172-3 Ag 25 '16
 Stabilising ships by means of gyroscopes. Engineer 122:169-70 Ag 25 '16; Same. *Sci Am* S 82:299 N 4 '16
 Stabilising ships by means of gyroscopes. B. E. Fillmor. Engineer 122:211-12 S 8 '16
 Stability of ships. J. R. Oldham. *Sci Am* 114:59 Ja 8 '16
 Statical stability at small angles. P: Doig. *il* Int Marine Eng 21:165-6 Mr '16
 Time element and related matters in some ship calculations; abstract. J. J. Welch. *il* Int Marine Eng 21:216-17 Ap '16

Steering

See Steering gear

Subdivisions

See Naval architecture—Subdivisions

Ventilation

- Asphyxia from defective ship-board ventilation. *Sci Am* S 82:206 S 23 '16
 Ventilation in ships. J. Keith. Metal Work 85:217 F 11 '16

Ships—*Continued*

Vibration

Pallograph—an instrument for recording vibrations of vessels. *il Sci Am* 114:64 Ja 8 '16
 Period of vibration of steam vessels. *W: Gatewood. Int Marine Eng* 20:547 D '15

Water supply

Supplying water to river and lake ships. *diags Metal Work* 86:675 D 1 '16
 Water supplies of interstate common carriers on the Great Lakes. *H. P. Letton. il diags map Am Water Works Assn J* 3:364-84 Je '16
 Water supply equipment of ocean-going craft. *Metal Work* 86:71, 142+, 275 Jl 21, Ag 4, S 1 '16

Ships, Motor. See Motor ships

Ships, Rolling of. See Ships—Stability

Ships, Speed of

Increasing speed of ships. *W. E. De Pertreche. Sci Am* 115:369 O 21 '16

Ships, Unsinkable

Unsinkable ships. *L: E. Horne. Sci Am* 115:369 O 21 '16

Shipwrecks

American warship lost in West Indian hurricane. *il Sci Am* 115:284 S 23 '16
 Marine disaster on the coast of China. *il Sci Am* S 81:413 Je 24 '16
See also Salvage

Shipyards

Cramp ship and engine building plant. *Int Marine Eng* 21:120 Mr '16
 Fore river shipyard, Quincy, Mass. *il Int Marine Eng* 21:114-17 Mr '16
 Large steel-frame ship shed contains special trusses designed for vertical and horizontal crane loading. *il diags plan Eng Rec* 74:550-2 N 4 '16
 New Skinner & Eddy shipyard. *G. C. Dohm. il plan Int Marine Eng* 21:378-81 Ag '16
 Newport News shipyard and repair plant. *il plan Int Marine Eng* 21:131-3 Mr '16
 Robins dry dock and repair plant, Brooklyn, N. Y. *il Int Marine Eng* 21:137-9 Mr '16
 Ship repair yards in New York harbor. *il Int Marine Eng* 21:139-40 Mr '16
 Shipyard of the Maryland steel company, Sparrows Point, Md. *il plan Int Marine Eng* 21:124-6 Mr '16
 Sun shipbuilding plant planned for rapid production of special standard steamers. *il plan Eng Rec* 74:498-9 O 21 '16

Shirting

Designs for fancy cotton shirtings. *il Textile World* 51:137 D 11 '15

Shirts

Shirt and collar industries; report on the cost of production in the United States. *U S Bur For & Dom Com misc ser* 36:1-178 '16

See also Shirting

Shoe factories

Electric drive in the shoe manufacturing industry. *N. G. Meade. il Elec W* 67:708-9 Mr 25 '16
 Electric heating economical for shoe factories. *il Elec R & W Elec'n* 68:109 Ja 15 '16
 Electric heating in its application to shoe-making machinery. *il Elec W* 67:278-9 Ja 29 '16
 Electric heating in shoe factories. *D. M. De Bard. Elec R & W Elec'n* 69:878 N 18 '16
 Electricity in shoe manufacturing. *il Elec R & W Elec'n* 68:456-8 Mr 11 '16
 Electricity supersedes steam for heating shoe machinery in Brockton (Mass.) factory. *D. M. DeBard. il Elec W* 68:914-15 N 4 '16
 Motor drive effects economies in shoe factory. *il Elec R & W Elec'n* 69:766-7 O 28 '16

Shoes

Care of the feet. *il Sci Am* S 81:252-3 Ap 15 '16
 Wooden soled shoes in Germany. *il Sci Am* S 82:116 Ag 19 '16
See also Leather

Shooting

Aiming a rifle. *W. Winans. Sci Am* 114:425 Ap 22 '16

Aiming with the rifle. *E. Edser. diags Sci Am* S 81:124-5 F 19 '16

See also Ballistics; Firearms; Target practice

Shop conferences. See Foremen's meetings

Shop management

Labor cost keeping in a boiler shop. *Iron Age* 98:342-3 Ag 17 '16
 Successful shop suggestion system. *H. A. Russell. il Iron Age* 98:983-5 N 2 '16

See also Factory management; Foundry management; Machine shop management; Organization in industry; Railroads—Shops; Scientific management

Shop transportation. See Conveying machinery; Telferage

Shops

See also Electric railroads—Shops; Machine shops; Mine shops; Plumbing shops; Railroads—Shops; Woodworking shops

Shops, Electric. See Electric shops

Shops, Locomotive. See Locomotive shops

Shops, Repair. See Repair shops

Shore protection

Brush and riprap buffer will protect bulkheads. *H. E. Weir. il diags Eng Rec* 73:743 Je 3 '16
 Brush-and-stone jetties prove effective at Ventnor City and Longport, New Jersey. *W. I. Risley. diags map Eng Rec* 73:829-31; 74:117 Je 24, Jl 22 '16
 Coast erosion and sea defense. *Eng Rec* 74:118 Jl 22 '16
 Concrete sheet-pile groin at Long Branch, N. J. *J. W. Seaman. il diags Eng N* 75:650-1 Ap 6 '16
 Holland develops new types of shore protection. *diags Eng Rec* 73:118-20 Ja 22 '16
 Low jetties for shore protection built by Jersey Central. *diags Eng Rec* 74:18 Jl 1 '16
 Preservation of sandy beaches. *E. J. Dent. diags Sci Am* S 82:236-9 O 7 '16
 Protecting a beach highway from the sea. *il diag Eng Rec* 74:208 Ag 12 '16
 Revere beach rampway. *W. B. Conant. il Munic J* 39:951-2 D 23 '15
 San Francisco shore protection near completion. *il Eng N* 76:543-4 S 21 '16
 San Francisco will protect beach with bleachers. *il diag Eng Rec* 74:560-1 N 4 '16
 Shore at Venice, California, best protected by permanent sea wall and low groins. *diags Eng Rec* 73:51-4 Ja 8 '16
 Shore paving at seaside resort, Revere beach, Boston. *il Eng N* 75:456-7 Mr 9 '16
See also Flood control; Harbors; Rivers—Bank protection; Sea walls

Shoring and underpinning

Difficult underpinning along William street subway, N. Y. *E. A. Prentiss, jr. il diags Eng N* 75:681-5 Ap 13 '16
 Method of underpinning a tenement building in New York. *Eng & Contr* 44:440 D 8 '15
 Remarkable underpinning work. *il Sci Am* 115:62 Jl 15 '16
 Tests of soil and methods of underpinning buildings adjoining subway construction on William street, New York. *J. E. Greathead. diags Eng & Contr* 44:477-81 D 22 '15
 Underpinning with hollow piles driven with point. *G. L. Knight. il plan Eng N* 76:982-5 N 23 '16
See also Bracing; Foundations; Scaffolding

Short circuits

Approximate method of calculating short-circuit current in an alternating-current system. *H. R. Wilson. diags Gen Elec R* 19:475-9 Je '16
 Approximate solution of short-circuit problems. *E. G. Merrick. diags Gen Elec R* 19:470-4 Je '16
 Calculation of sudden short circuit phenomena of alternators. *N. S. Diamant. diags 6 pls Am Inst E E Pro* 34:2043-79 S '15; Discussion. 35:479-83 Ap '16
Shortleaf pine. See Pine

Shoveling machines

- Electro-hydraulic shovel. F. H. Armstrong. *il* *diag* *Am Inst Min E Bul* 110:203-9 F '16;
 Same. *Iron Age* 97:308-9 F 3 '16; Same.
Iron Tr R 58:393-5 F 17 '16; Same *cond.*
Eng & Min J 101:860-1 My 13 '16; *Abstract.*
Eng M 50:944 Mr '16
 Gasoline power scraper shovel for handling
 bulk materials. F. C. Perkins. *il* *Eng &*
Contr 46:69-70 J1 19 '16
 Power scraper shovel for ore boats. *il* *Iron*
Age 96:1115-16 N 11 '15; *Metal Work* 84:794
 D 24 '15; *Int Marine Eng* 21:45-6 Ja '16; *Sci*
Am 114:279 Mr 11 '16; *Engineer* 122:376-7 O
 27 '16

See also Electric shovels; Steam shovels

Shovels

- Adjustable pole-hole digger. *il* *Elec W* 66:
 1049-50 N 6 '15; *Elec R & W Elec'n* 68:127 Ja
 15 '16
 Economy in buying good shovels. C: H. Clark.
Elec Ry J 47:175-6 Ja 22 '16
 New collapsible shovel a time saver. *il* *Sci*
Am 115:127 Ag 5 '16
 Scientific selection of shovels for contract
 work. G. W. Benton. *Concrete* 9:150 N '16

See also Shoveling machines

Shovels, Electric. *See* Electric shovels

Shovels, Steam. *See* Steam shovels

Show cards**Specimens**

- Window cards. *il* *Inland Ptr* 57:640a-640d Ag
 '16

Show windows

- Appropriate Christmas window display one of
 the greatest merchandising assets. *il* *Elec R*
& W Elec'n 69:804-5 N 4 '16
 Attention-attracting novelties in window dis-
 play. *diag* *Elec R & W Elec'n* 68:382 F 26
 '16
 Christmas window that proved itself; Electric
 lighting supply co., Los Angeles. *il* *Elec W*
 66:1376 D 18 '15
 Creating an atmosphere. W. B. Stoddard. *Am*
Gas Light J 104:189 Mr 20 '16
 Electrically operated, animated window-dis-
 play and advertising machine. *il* *Elec R & W*
Elec'n 69:860 N 11 '16
 Gas appliance display and demonstration.
 J. E. Bullard. *Gas Age* 38:23-6, 75-9, 127-33,
 179-84 J1 1-Ag 15 '16
 Getting away to a flying start in business.
Metal Work 85:436-7 Mr 31 '16
 Human interest in a central-station window
 display. *il* *Elec R & W Elec'n* 68:25 Ja 1 '16
 Importance of display. S. E. Rose. *il* *Horseless*
Age 36:522+ D 15 '15
 Jobber's suggestions for window publicity. *il*
Elec W 66:1429 D 25 '15
 Mixing colors in window dressing. W. E.
 Crane. *il* *Horseless Age* 38:182-3 S 15 '16
 Nearly 700 washers sold as result of window-
 display contest. *Elec W* 67:272 Ja 29 '16
 Non-reflecting store window. *diags* *Eng N* 76:
 916 N 9 '16
 Obtaining publicity through attractive window
 displays. *il* *Elec R & W Elec'n* 68:247-8 F 5
 '16
 Perfect display. J: R. Rhoads. *il* *Horseless Age*
 36:522+ D 15 '16
 Preventing condensation on show windows.
diag *Bldg Age* 38:60-1 F '16
 Show window axioms. H. T. Owens. *Am Gas*
Light J 104:172-3 Mr 13 '16; *Excerpts.* *Elec*
W 67:715 Mr 25 '16
 Show window—does it pay? S. H. Alexander.
Am Gas Light J 103:362 D 6 '15
 Taking advantage of selling aids. A. H.
 Bartsch. *il* *Horseless Age* 37:459-62+ Je 15
 '16
 Window trimming a merchandising factor. *il*
Elec R & W Elec'n 68:296-7 F 12 '16
 Wireless sign attracts attention in Spring-
 field window. *Elec R & W Elec'n* 68:151 Ja
 22 '16

Shower baths

- Safeguarding the shower bath. H. L. Alt.
diags *Dom Eng* 75:162-4 My 6 '16

Shrapnel shells

- Esco grooving machine. *il* *Mach* 22:906-7 Je '16
 How shrapnel shell is made. *Sci Am* 114:152-3
 F 5 '16

- How steel bars are rolled for use in the manu-
 facture of shrapnel shells. W. S. Standi-
 ford. *il* *Sci Am* 115:245 S 9 '16
 Machining the band grooves in shrapnel shells.
 J. W. Geary. *diags* *Mach* 22:331-2 D '15
 Making gages for shrapnel shells. A. A. Dowd.
il *Iron Tr R* 59:17-20 J1 6 '16
 Reclaiming Russian three-inch shrapnel fuse
 bodies; abstract. *diags* *Am Soc M E J* 38:
 836-7 O '16
 Shrapnel shells; how they are designed and
 tested. G: P. Jewell. *il* *diag* *Sci Am* S 82:44
 J1 15 '16
 Vertical milling machine for shrapnel. *il* *Iron*
Age 96:1417 D 16 '15

Shrimps

- How the shrimp industry saved Fernandina.
 C: M. Maigne. *il* *Sci Am* 115:35 J1 8 '16

Shrinkage. *See* Wool—Shrinkage

Shuttles

- Improved thread tension device for shuttles.
diags *Textile World* 51:3459+ Ag 5 '16

Siam. *See* Mines and mineral resources—Siam

Siberia

See also Mines and mineral resources—
 Siberia

Sibley college

- Alphabetical and geographical lists of former
 students of Sibley college. *Sibley J* 30:319-66b
 J1 '16

Sickness, Feigned. *See* Malingering

Sidewalks

- Curbs and sidewalks; some practical and aes-
 thetic considerations in their design and
 location. M. E. Chamberlain. *Eng & Contr*
 45:336 Ap 5 '16; *Abstract* (Sidewalks in steep
 streets). *Eng N* 75:413 Mr 2 '16
 Methods of fixing curb and sidewalk grades
 at street intersections on steep gradients.
 J: Wilson. *plan* *Eng & Contr* 45:346-7 Ap 12
 '16
 Sanding icy sidewalks. C. W. Shafer. *Munic J*
 40:104-5 Ja 27 '16
 Sidewalk, curb and gutter units. *Munic J* 40:
 898 Je 29 '16
 Sidewalk improvements—1916; tabulation. *Mu-*
níc Eng 50:150-1 Ap '16
 Sidewalks and sidewalk construction. *il* *Munic*
J 41:285-8 S 8 '16
 Sidewalks, curbs and gutters built in 1915;
 tabulation. *Munic J* 40:172-81, 404 F 3, Mr 23
 '16

See also Pavements

Sidewalks, Concrete

- Concrete sidewalk construction. R. W. Crum.
il *Iowa state college Bul* 21:1-23 '16
 Drier top and long-handled tools speed up
 sidewalk finishing. N. A. Wood. *Concrete*
 8:189 Ap '16
 Good practice in sidewalk construction. *Con-*
crete 9:101-2 S '16
 Method and cost of raising sunken concrete
 walk. H. R. Ferris. *diag* *Eng & Contr* 46:
 302 O 4 '16

Sieges

- Field fortifications, sieges and demolitions.
 T: M. Robins. *diags* *plan* *Eng & Min J* 101:
 514-20 Mr 18 '16

Sieves

See also Riddles

Sight

- Absence of the Purkinje phenomenon in the
 fovea. L. T. Troland. *J Fr Inst* 182:111-12
 J1 '16
 Binocular vision. F: Campbell. *Sci Am* 115:
 321 O 7 '16
 Color-vision. F. W. Edridge-Green. *Sci Am S*
 82:31-2, 39 J1 8-15 '16
 Cultivating stereoscopic sight. W. M. Brodie.
Eng & Min J 102:743-4 O 21 '16
 Improved visual acuity test object. H. E. Ives.
J Fr Inst 182:539 O '16
 Laws of visual minuthesis; the influence of
 intensity on the equality time-function.
 L. T. Troland. *J Fr Inst* 181:855-6 Je '16
 Laws of visual minuthesis; the threshold pre-
 exposure time and the equilibrium time for
 a projected negative after-image. L. T.
 Troland. *J Fr Inst* 181:579-81 Ap '16

Sight—Continued

Probable perception of invisible light by some animal species. J. F. Tristan and G. Michaud. *il Sci Am* 114:81+ Ja 15 '16

Reversal of a faded negative after-image by brightening the stimulus field. L. T. Troland. *J Fr Inst* 182:529-30 O '16

Visual pattern-discrimination in the vertebrates; a demonstration of the dog's deficiency in detail-vision. H. M. Johnson. *J Fr Inst* 180:736-8 D '15; Same. *Sci Am* S 81: 315, 357 My 13, Je 3 '16

Visual pattern-discrimination in the vertebrates; effective differences in direction of visible striæ for the monkey and the domestic chick. H. M. Johnson. *J Fr Inst* 180:735-6 D '15

See also Color sense; Eye

Sights, Telescopic. *See* Telescopic sights

Sights for firearms. *See* Firearms—Sights

Sign painting

See also Lettering

Signal association, Railway. *See* Railway signal association

Signal lamps. *See* Light signals

Signals, Electric. *See* Electric signals

Signals, Submarine. *See* Submarine signals

Signals and signaling

Signaling among the ancients. H: N. Shore. *Sci Am* S 81:154-5 Mr 4 '16

Signaling at sea. J. Joly. *Sci Am* S 81:299 My 6 '16

See also Aeronautics—Signals; Automobile signals; Electric railroads—Signals; Electric signals; Fire alarms; Fog signals; Light signals; Mine signals; Railroads—Signals; Telegraph; Wireless telegraph

Signals and signaling, Military

How an army hears. *il Sci Am* 115:122 Ag 5 '16

Signs

Display signs as sales magnets. A. H. Bartsch. *il Horseless Age* 38:499-504 Jl 1 '16

Labeling your factory; photographs. *Factory* 17:258-9 S '16

Universal danger sign adopted by the National safety council. *il Iron Age* 98:939 O 26 '16; *Coal Age* 10:716 O 28 '16; *Eng & Min J* 102: 834 N 4 '16

See also Road signs; Signals; Street signs

Signs, Electric. *See* Electric signs

Silica

Quantitative determination of silica. V: Lenher and E. Truog. *Am Chem Soc J* 38:1050-63 My '16

Study of the silica refractories. J. S. McDowell. *bibliog il Am Inst Min E Bul* 119:1999-2055 N '16

Silica brick. *See* Fire brick

Silicon

Vacuum-fused iron with special reference to effect of silicon. T. D. Yensen. *il Am Inst Min E Bul* 110:483-512 F '16; *Abstract. Met & Chem Eng* 14:280 Mr 1 '16; *Summary. Iron Age* 97:437 F 17 '16; *Summary. Eng M* 51:119 Ap '16; *Discussion. Am Inst Min E Bul* 113:935-7 My '16

Silicon iron

Acid-resisting alloys. W. C. Carnell. *J Ind & Eng Chem* 8:922-3 O '16

Silicon steel

Manufacture and uses of alloy steels. H: D. Hibbard. *U S Bur Mines Bul* 100:51-3 '15; Same. *Iron Age* 97:662 Mr 16 '16

Silicon steel for bridges. *Eng N* 75:1105 Je 8 '16

Silicon xycarbide. *See* Fibrox

Silk

Details in manufacture of spun silk yarns. J. W. Hollas. *il Textile World* 51:3813+, 4453+ S 2, O 14 '16

Dyestuffs and silk. *Textile World* 51:1531+ Mr 25 '16

England plans a notable research on silk. *Textile World* 51:4255 S 30 '16

Misbranding legislation. *Textile World* 51: 923 Ja 29 '16

Treating silk with Neat's foot oil. J. Chittick. *Textile World* 51:4539 O 21 '16

Use of silk in New England cotton mills. *il Textile World* 51:977 F 5 '16

See also Textile industry and fabrics

Testing

Systematic examination and testing of raw silk. K. B. Lamb. *Textile World* 51:669-70, 675 Ja 15 '16

Silk, Artificial

Bleaching and dyeing artificial silk. *Textile World* 51:4833 N 11 '16

Strength of artificial silk. *Textile World* 51: 3995 S 16 '16

Textile patents. *diag Textile World* 51:895+ Ja 29 '16

Silk machinery

Details in manufacture of spun silk yarns. J. W. Hollas. *il Textile World* 51:3813+, 4453+ S 2, O 14 '16

Use of ball bearings on silk machinery. *il diags Textile World* 51:4353 O 7 '16

Silk mills

Electricity in the manufacture of silk. *il Elec R & W Elec'n* 68:670-2 Ap 15 '16

Silk waste

Treatment of silk waste. *Textile World* 51: 93+ D 4 '15

Silkworms

Proposed introduction of silkworm industry in Germany. *Sci Am* 115:306 S 30 '16

Sil-o-cel powder. *See* Celite

Silos

100-ton silo for \$200. C: A. Byers. *il Bldg Age* 38:57-8 Ag '16

Silos, Concrete

Bulk cement in a silo stave plant. H. Bradney. *diags Concrete* 8:71 F '16

How shall the inside of a concrete stave silo be finished? *Concrete* 9:134-5 O '16

Simple operations in making silo staves. *il Concrete* 8:143 Mr '16

Silt

Silt problem in Imperial Valley system. J. C. Allison. *Eng Rec* 73:182 F 5 '16

Silt problem on Yuma irrigation project solved. L. M. Lawson. *Eng Rec* 74:406 S 30 '16

Silver

Advance in silver. *Eng & Min J* 100:938 D 4 '15

Allotropy of silver; abstract. W. D. Helder- man. *Met & Chem Eng* 15:599-600 N 15 '16

Commercial movement of the precious metals. *Eng & Min J* 101:45-6 Ja 8 '16

Determining weight of deposit. L. C. Wilson. *Metal Ind n s* 13:506-7 D '15

Electroanalysis of silver with solutions of silver chloride in ammonia. E. P. Schoch and F. M. Crawford. *Am Chem Soc J* 38:1682-3 S '16

Estimation of vanadic acid, after reduction by metallic silver. G. Edgar. *Am Chem Soc J* 38:1297-1302 Jl '16

Gold and silver deposits in North and South America. W. Lindgren. *maps Am Inst Min E Bul* 112:721-46 Ap '16

Gold and silver statistics. F: Hobart. *Eng & Min J* 101:43-5 Ja 8 '16

Inclusions in the silver voltmeter deposits. G. W. Vinal and W: M. Bovard. *Am Chem Soc J* 38:496-515 Mr '16

Silver position in China. *Eng & Min J* 102:272 Ag 5 '16

Will silver come back? T: Tonge. *Met & Chem Eng* 14:122-4 F 1 '16

See also Silver metallurgy; Silver mines and mining; Silver plating

Silver fulminate

Stability of silver fulminate under water. A. M. Peter. *Am Chem Soc J* 38:486 F '16

Silver iodide

Thermodynamic properties of silver and lead iodides. H. S. Taylor. *Am Chem Soc J* 38: 2295-310 N '16

Silver metallurgy

Extraction of gold and silver from matte by lead. W. Mostowitsch. *diag Met & Chem Eng* 14:703-6 Je 15 '16; *Excerpt. Eng & Min J* 102:183 Jl 22 '16

Silver metallurgy—Continued

- Hydrometallurgical treatment of complex gold and silver ores. G. H. Clevenger. *Met & Chem Eng* 14:203-10 F 15 '16
- Metallurgy of gold and silver. H. A. Megraw. *Eng & Min J* 101:94-7 Ja 8 '16
- Metallurgy of native silver ores of Mexico. W. M. Brodie. *Met & Chem Eng* 14:278 Mr 1 '16
- Metallurgy of native-silver ores of southwestern Chihuahua. W. M. Brodie. *Eng & Min J* 101:297-301 F 12 '16
- Metallurgy of the ores from Cobalt, Ont. R. W. Bridges. *Eng & Min J* 101:646-7 Ap 8 '16
- Patio process. *Eng & Min J* 102:64-6 Jl 1 '16
- Treating amalgamation tailings. J. Allingham. *Eng & Min J* 102:591-2 S 30 '16

See also Cyanide plants

Silver mines and mining**Bolivia**

- Silver-tin mining in Bolivia. J. T. Singewald, jr. and B. L. Miller. *Eng & Min J* 102:553-5 S 23 '16

Mexico

- Metallurgy of native-silver ores of southwestern Chihuahua. W. M. Brodie. *Eng & Min J* 101:297-301 F 12 '16
- Mining and milling practice at Santa Gertrudis. H. Rose. *il diags plans flow sheet Am Inst Min E Bul* 116:1299-1314 Ag '16; Same. *Eng & Min J* 102:372-6 Ag 26 '16

New Mexico

- Black Hawk silver-cobalt ores, New Mexico. A. A. Leach. *Eng & Min J* 102:456 S 9 '16

Peru

- Prominent mines of Junin, Peru. J. T. Singewald and B. L. Miller. *Eng & Min J* 102:586-7 S 30 '16

Silver plating

- Addition agents in the electro-deposition of silver from silver nitrate solutions. F. C. Mathers and J. R. Kuebler. *il Metal Ind n s* 14:332-4, 422-3 Ag, O '16
- Determining weight of deposit. L. C. Wilson. *Metal Ind n s* 13:506-7 D '15
- How to silver plate reflectors. *Metal Ind n s* 14:20 Ja '16

Silver salts

- Catalytic decomposition of certain phenol silver salts. W. H. Hunter, A. O. Olson and E. A. Daniels. *Am Chem Soc J* 38:1761-71 S '16
- Silver salt of triiodophenol and its catalytic decompositions. G. H. Woollett. *Am Chem Soc J* 38:2474-8 N '16
- Systematic separation of the anions of group 1; anions whose silver salts are insoluble in nitric acid. H. C. P. Weber and H. A. Winkelmann. *Am Chem Soc J* 38:2000-13 O '16

Silverware**Cleaning**

- Study of the electrolytic method of silver cleaning. H. L. Lang and C. F. Walton, jr. *U S Agric Bul* 449:1-12 '16

Manufacture

- Efficiency system as applied to the manufacture of plated ware. C. W. Cook. *Metal Ind n s* 14:163-4 Ap '16

Sine bar

- Sine bar applications; details of construction and methods of obtaining accurate angular work. D. Baker. *diags Mach* 23:120-4 O '16

Singeing machines

- Machinery for bleaching, dyeing, and printing cotton fabrics. *il diags Engineer* 121:272-3 Mr 31 '16
- Singeing machine for hosiery. *diag Textile World* 51:1570 Mr 25 '16

Singing

- Letting the eye train the voice; a new instrument that shows a singer whether he is true to pitch. L. E. Dodd. *il Sci Am* 115:410+ N 4 '16
- Using the eye instead of the ear in the training of a musician. C. E. Seashore. *il Sci Am* 114:506 My 13 '16

Sinking funds

- How to use sinking funds. W. H. Forse, jr. *Elec Ry J* 18:528-30 S 23 '16
- Sinking-fund delusion. *Eng N* 74:1282 D 30 '15
- Sinking-fund delusion. A. C. Humphreys. *Eng N* 75:187, 431-2, 716-17 Ja 27, Mr 2, Ap 13 '16

Sinking of shafts. See Shaft sinking**Sinks**

- Various types of kitchen sinks. E. R. Porter. *diags Dom Eng* 74:389-91; 75:34-5 Mr 25, Ap 8 '16

Sintering

- Agglomerating fine ore, patented invention of Philip O. Harding. *diag Met & Chem Eng* 14:396 Ap 1 '16
- Continuous ore sintering machine. P. O. Harding. *diags Iron Age* 98:138-9 Jl 20 '16
- Dwight-Lloyd annular sintering apparatus. *diag Eng & Min J* 101:526 Mr 18 '16
- Lead-smelting practice in the United States. A. S. Dwight. *il diag plan Eng & Min J* 102:671-7 O 7 '16
- Sintering of flotation concentrates. B. Magnus. *diags Eng & Min J* 101:1032-3 Je 10 '16
- Sintering ore and flue dust; recent patents. *Iron Age* 97:960 Ap 20 '16
- Sintering plant installed at Toledo. H. V. Schiefer. *il diags Iron Tr R* 58:1154-61 My 25 '16

Sioux Falls, South Dakota**Water supply**

- Water-works improvements at Sioux Falls, S. D. *il plan Eng N* 76:840-2 N 2 '16

Siphons

- Automatic siphons used in Italian dams. L. Luiggi. *diags Eng Rec* 72:697 D 4 '15
- Inverted sewer siphons under New York subway. S. D. Bleich. *plan Eng N* 76:442-3 S 7 '16
- Inverted syphon in a suction main. K. C. Kastberg. *Eng & Contr* 46:415 N 8 '16
- Inverted siphons replace bridges where canals meet roads. *Eng Rec* 73:478 Ap 8 '16
- Review of records of concrete casing and lining steel and wood stave pipe siphons. *diags Eng & Contr* 45:416-20 My 3 '16
- Review of records of reinforced concrete inverted siphon construction. *diags Eng & Contr* 45:247-50 Mr 15 '16
- Rise and fall of a siphon. *Coal Age* 10:819 N 11 '16
- Siphon line in a mine. *diag Coal Age* 9:858; 10:159-60, 198, 399-401 My 13, Jl 22-29, S 2 '16
- Siphon will not work. *diag Metal Work* 84:777, 842; 85:16-17, 102-3 D 17, 31 '15, Ja 7-14 '16
- \$600,000 Washington irrigation project, financed by landowners, completed in a year. J. C. Stevens. *il diags map Eng Rec* 74:640-3 N 25 '16
- Use of the siphon in mines. *Coal Age* 10:856-7 N 18 '16

Sirups. See Syrups**Sizing**

- Grading industries. E. S. Wiard. *diags Met & Chem Eng* 14:91-6, 191-7, 529-33, 575-80 Ja 15, F 15, My 1-15 '16
- Probability and chance in screening. N. Herz. *Met & Chem Eng* 14:297-8 Mr 15 '16

Sizing (machinery). See Machinery supplies—Sizing**Sizing (textile)**

- Securing full service from starch in sizing. *il Textile World* 51:585, 589 Ja 15 '16
- Sizing jute warp. *Textile World* 51:1773 Ap 8 '16
- Starch for sizing purposes. P. Bean. *Textile World* 51:291+ D 25 '15
- Strength of starch. *il Textile World* 51:353+ Ja 1 '16
- Textile starches; properties useful to mills. G. M. MacNider. *il Textile World* 51:5019+ N 25 '16

See also Cotton sizing

Skagerrak, Battle of. See European war—Naval operations**Skating rinks**

- Electric refrigerator for indoor ice rink. *il Elec W* 68:617-18 S 23 '16
- See also Roller skating rinks

Skidding. See Automobiles—Skidding

Skin effect

Application of telephone transmission formulæ to skin-effect problems. G. W. O. Howe. *diags Inst E E J* 54:473-80 Ap 1 '16

Calculation of skin effect in strap conductors. H. B. Dwight. *Elec W* 67:593-4 Mr 11 '16

Experimental researches on skin effect in conductors. A. E. Kennelly, F. A. Laws and P. H. Pierce. *il diags Am Inst E E Pro* 34: 1749-1809; *Bibliog.* 1809-14 Ag '15; *Discussion.* 35:609-11 My '16

Experimental researches on the skin effect in steel rails. A. E. Kennelly, F. H. Achard and A. S. Dana. *bibliog il diags J Fr Inst* 182: 135-89 Ag '16

Skin effect factors for iron wire. J. D. Ball. *Gen Elec R* 19:493-6 Je '16

Skip stops. See Street railroads—Stops

Skis and ski-running

Campaigning in the snow. *il Sci Am S* 82:37 J1 15 '16

Skunk farming

Successful experiment in skunk farming. H. D. Jones. *il Sci Am* 114:346+ Ap 1 '16

Skylights

Estimating quantities in sheet metal work. *Metal Work* 86:9 J1 7 '16

Figuring skylight sizes. *Metal Work* 85:318, 355 Mr 3-10 '16

Figuring skylights on the square-foot basis. *diags Metal Work* 85:218-20 F 11 '16

Fireproof and puttless monitor skylight. *diags Metal Work* 85:277-80, 342-3, 544-5, 667-8 F 25, Mr 10, Ap 21, My 19 '16

Proper sizes for skylights. *Metal Work* 85:822 Je 16 '16

Rule for pitch of skylight or roof. *Metal Work* 85:414 Mr 24 '16

Slag

Baggaley patent for utilizing heat of molten slag. *Eng & Min J* 100:1050 D 25 '15

Blast furnace smelting of cyanide precipitate. R. Chauvenet. *Met & Chem Eng* 14:96-9 Ja 15 '16

Conservation of phosphate rock in the United States. W. C. Phalen. *Am Inst Min E Bul* 119:1923-4 N '16

Function of alumina in slags. C. Henrich. *Am Inst Min E Bul* 119:2081-6 N '16

Function of slags in ore reduction. J. E. Fletcher. *Iron Tr R* 59:947-9 N 9 '16

Iron furnace slag for roads. *Munic J* 41:424 O 5 '16

Making basic phosphate fertilizer. Ensley, Ala. *il Iron Tr R* 59:22-5 J1 6 '16

Method for measuring the viscosity of blast-furnace slag at high temperatures. A. L. Feild. *il diags U S Bur Mines Tech Pa* 157: 1-27 '16

Operation of the blast furnace. J. E. Johnson. *ir. il Vet & Chem Eng* 14:363-72 Ap 1 '16

Slag lining for launders. W. A. Leddell. *il Eng & Min J* 102:644-6 O 7 '16

Slag Portland cement; abstracts. B. J. Day. *Engineer* 121:181-2 F 25 '16; *Sci Am S* 81: 203 Mr 25 '16

Steel and high-phosphorus slag. patent by A. W. Allen and E. G. Lilly. *Met & Chem Eng* 15:655-6 D 1 '16

Synthetic nitric acid in connection with the utilization of slags and waste gases. E. K. Scott. *Iron Age* 98:305 Ag 10 '16

Utilization of iron and steel works' slags. E. C. Brown. *Eng Soc W Pa* 31:884-96 Ja '16; Same abr. *Iron Tr R* 59:315-17 Ag 10 '16; Same cond. *Concrete* 9:20-1 J1 '16; Excerpts. *Iron Age* 96:1476-7 D 23 '15; *Discussion.* *Eng Soc W Pa* 31:897-927 Ja '16; Same cond. *Concrete* 9:21-3 J1 '16

Viscosity of furnace slags. *il Iron Age* 97:1259-60 My 25 '16

See also Blast furnaces; Cement

Slang

Slang. F. H. Teall. *Inland Ptr* 57:760-2 S '16

Slate

Analysis of slate and dike. E. E. White. *Eng & Min J* 101:433-4 Mr 4 '16

Practical suggestions on slate roofing. *Metal Work* 85:780 Je 9 '16

Uses of ground slate. *Concrete Cem* 7:214 D '15

Slaughtering and slaughter houses

Slaughter-house sewage test plant. Buenos Aires. W. S. Coulter. *Eng N* 76:837-8 N 2 '16

Sleeping cars

Ventilation of sleeping cars; comparative tests of various types of exhaust ventilators. T. R. Crowder. *Am Soc Heat & V E* 21:274-97 '15; Same abr. *Ry Age* (Mech ed) 89:464-6 S '15; *Discussion.* *Am Soc Heat & V E* 21:297-300 '15

Sleet

Protecting tower lines from sleet. T. Holmgren. *Elec W* 66:1372 D 18 '15

What is sleet? *Sci Am* 114:634 Je 17 '16

Sleet (word)

Sleet—glaze—rime. *Sci Am* 115:296 S 30 '16

Slide rule

Circular slide-rule for shaft designers. E. S. Oberndorf. *diag Mach* 22:792-3 My '16

Hartford flywheel calculator. *il Locomotive* 30: 235-8 O '15

Interpolating logarithms with the slide rule. H. B. Schell. *Power* 43:451-2 Mr 28 '16

Slide rule and flow computer. *il Power* 43:257 F 22 '16

Slide rule for re-gearing water meters. F. L. Bock. *Eng N* 76:800 O 26 '16

Slide rule for solving flow problems. *il Iron Tr R* 53:194 Ja 20 '16

Slide rules for reinforced concrete design. E. F. Rockwood. 2 pls *Boston Soc C E J* 3:207 My '16

Twin-pipe problem solved by hydraulic slide-rule. A. Hazen. *Eng N* 76:85 J1 13 '16

Use of slide rule in calculating base-bullion assays. *Met & Chem Eng* 14:561-2 My 15 '16

Using a slide rule. *Power* 42:825-6 D 14 '15; Same. *Locomotive* 31:22-5 Ja '16

Slides. See Earthwork—Slides

Sliding partitions. See Partitions

Slimes. See Ore pulp

Slings and hitches

Manilla rope in railway service. F. E. Weise. *il Ry R* 57:818-23 D 25 '15; Excerpts. *Ry Age* 59:758-9 O 22 '15; *Eng & Contr* 44:345-6 N 3 '15

Sludge, Sewage. See Sewage sludge

Sluice gates

Bronze-on-bronze friction in sluice gates tested. D. C. Henny. *Eng Rec* 74:330 S 9 '16

Double-hung sluice gate. *diags Eng N* 75:517 Mr 16 '16

Slums. See Cleaning of cities

Small arms. See Firearms

Smelter fumes

Chemical evidence of smelter smoke injury to vegetation. J. P. Mitchell. *J Ind & Eng Chem* 8:175-6 F '16

Collecting powdery material. T. C. Cloud. *Eng & Min J* 101:357 F 19 '16

Destruction of vegetation by fumes from smelters. *il Sci Am* 114:123 Ja 29 '16

Method of determining dust loss at Copper Cliff, Ont. E. H. Robie. *il diag Eng & Min J* 101:505-8 Mr 18 '16

Problems in smoke, fumes and dust abatement. F. G. Cottrell. *Factory* 17:50+ J1 '16

Purifying gas in sulphuric acid manufacture; patent by C. F. Moore. *diag Met & Chem Eng* 15:602-3 N 15 '16

Report of the Selby smelter commission; with accompanying papers. *bibliog il diags charts maps U S Bur Mines Bul* 98:1-528 '15; Abstract. *J Ind & Eng Chem* 7:41-5 Ja '15; Abstract. *Eng & Min J* 98:1075-8 D 19 '14

See also Bag houses; Electric precipitation; Flue dust

Smelting

Blast furnace smelting of cyanide precipitate. R. Chauvenet. *Met & Chem Eng* 14:96-9 Ja 15 '16

Coal-dust firing in reverberatory furnaces. C. R. Kuzell. *diags Eng & Min J* 101:302-6 F 12 '16; Excerpt. *Met & Chem Eng* 14:338 Mr 15 '16

Copper smelting at the United Verde copper company. *il Met & Chem Eng* 15:251-3 S 1 '16

Smelting—Continued

- Feeding blast-furnaces in pyritic smelting. R. C. Sticht. *Met & Chem Eng* 14:537-8 My 1 '16
- Lungwitz zinc-smelting process. W. M. Johnson. *Met & Chem Eng* 14:105-6 Ja 15 '16
- Metallurgy of the ores from Cobalt, Ont. R. W. Bridges. *Eng & Min J* 101:646-7 Ap 8 '16
- Pyrite smelting at Mount Lyell. R. Sticht. *Met & Chem Eng* 14:54-5 Ja 1 '16
- Recovery of white metals from drosses. A. Bregman. *diags Metal Ind n s* 14:103-6 Mr '16
- Reverberatory smelting at Consolidated Arizona smelting company, Humboldt, Arizona. *Met & Chem Eng* 14:33-4 Ja 1 '16
- Role of sulphur in pyritic smelting. R. C. Sticht. *Met & Chem Eng* 14:223-4 F 15 '16
- Zinc smelter of today. F. E. Pierce. *Eng Soc W Pa* 32:20-43; Discussion. 43-60 F '16

See also Blast furnaces; Furnaces, Metallurgical; Metallurgy; Ore treatment; Smelter fumes; Smelting works

Smelting, Electric

Electro-thermic smelting of iron ores in Scandinavia. *diags Engineer* 122:5-6 Jl 7 '16

See also Electric furnaces; Electrometallurgy

Smelting works

- Ashio's copper-smelting works at Honzan, Japan. *il diag Eng & Min J* 100:998-1001 D 18 '15
- Bunker Hill & Sullivan smelting works at Kellogg, Idaho. *plan Eng & Min J* 101:868-9 My 13 '16
- Calumet & Arizona smelter. *Eng & Min J* 102:663 O 7 '16
- Copper smelting at Naltagua in central Chile. M. L. Lamb. *il Eng & Min J* 102:777-80 O 28 '16
- Copper-smelting works of North America. *Eng & Min J* 101:52 Ja 8 '16
- Cost-accounting in the construction and operation of a copper smelter. E. E. Thum. *Met & Chem Eng* 14:325-9, 573-5, 660-2; 15: 96-100 My 1-Je 1, Jl 15 '16
- Donora zinc works. W. R. Ingalls. *il plan Eng & Min J* 102:648-54 O 7 '16
- Features of the new copper smelting plants in Arizona. A. G. McGregor. *il diags plan Am Inst Min E Bul* 116:1257-79 Ag '16; Same. *Met & Chem Eng* 15:329-37 S 15 '16; Discussion. *Am Inst Min E Bul* 120:2145 D '16
- International smelter at Miami. R. W. Kerns. *il diags Eng & Min J* 101:421-4 Mr 4 '16
- Kinks and wrinkles for the smelting plant; drawings. *Eng & Min J* 102:664-7 O 7 '16
- Silver-lead smelting works of North America. *Eng & Min J* 101:58-9 Ja 8 '16
- Tin smelting at Perth Amboy, N. J. R. H. Vail. *plan Eng & Min J* 101:927-9 My 27 '16
- Tuyere connections for copper and lead blast furnaces. E. H. Vail. *diags Eng & Min J* 102:639-43 O 7 '16
- Van Buren smelting plant. F. W. Bocking. *il plan diag Eng & Min J* 102:655-8 O 7 '16

See also Bag houses; Smelter fumes

Smith, William Sooy, 1830-1916

Sketch. Eng N 75:606-7 Mr 30 '16

Smoke

- Atmospheric pollution in English and Scottish towns. J. B. C. Kershaw. *il Engineer* 120: 473-5 N 19 '15; Same cond. *Met & Chem Eng* 13:967-71 D 15 '15
- Effect of smoke on trees. *Sci Am S* 81:3 Ja 1 '16
- Smoke as a source of atmospheric pollution. W. F. M. Goss. *il maps J Fr Inst* 181:305-38 Mr '16

See also Locomotives—Smoke problem; Smoke prevention; Soot

Smoke prevention

- Arrangement for maintaining even combustion in down-draft boilers. C. A. Fuller. *diags Heat & Ven* 13:22-3 O '16
- Attack on the smoke problem. O. Monnett. *Factory* 17:580+ N '16
- Boiler settings for smokeless combustion. O. Monnett. *diags Am Soc M E J* 38:633-6 Ag '16

- Burning soft coal without smoke; also combustion of coals in general. F. T. Oakes. *il diag Heat & Ven* 13:17-19 O '16
- Chicago association of commerce committee report on smoke abatement and electrification of railway terminals in Chicago. *Eng & Contr* 44:454-9 D 15 '15
- Chicago association of commerce smoke-abatement report. *map Ry Age* 59:1047-52 D 3 '15
- Chicago committee report on smoke abatement and terminal electrification. *map Elec Ry J* 46:1113-18 D 4 '15
- Chicago electrification report. *Elec R & W Elec'n* 67:1080-1 D 11 '15
- Chicago report on electrification. *Ry R* 57: 727-34 D 4 '15
- Chicago report: production of smoke by the railways of Chicago. *Ry Age* 59:1193-6 D 24 '15
- Chicago—\$600,000 inquiry finds electrification will not solve Chicago's smoke problem. *maps Eng Rec* 72:727-31 D 11 '15
- Chicago smoke abatement and electrification of railway terminals. W. F. M. Goss. *diags maps W Soc E J* 21:310-29; Discussion. 329-43 Ap '16
- Chicago smoke abatement and railway electrification. *Eng N* 74:1141 D 9 '15
- Chicago smoke abatement report. W. N. Smith. *Elec Ry J* 46:1216-17 D 18 '15
- Chicago smoke abatement report; discussion. *Ry Age* 60:676-7 Mr 24 '16
- Chicago smoke and electrification. *Ry Mech Eng* 90:11-14 Ja '16
- Chicago smoke prevention and electrification of railroads. *map Munic Eng* 49:202-7 D '15
- Climax smoke preventer. *il Power* 44:620-1 O 31 '16
- Co-operation between smoke producers. R. F. Dennison. *Power* 43:853 Je 13 '16
- Development of the smokeless boiler. C. L. Collette. *il diags Heat & Ven* 13:13-16 O '16
- Do chimneys need to smoke? L. F. Breckenridge. *Factory* 17:284+ S '16
- Electrical precipitation of smoke and dust. H. P. Hill. *il diags Elec W* 67:1097-9 My 13 '16
- Electrification of Chicago railroad terminal declared financially impracticable. *Elec W* 66: 1279 D 4 '15
- Electrification of the railways of Chicago. *Ry Age* 59:1089-91 D 10 '15
- Elements of smokeless furnace design. O. Monnett. *diags Heat & Ven* 13:17-24 Ja '16
- Essential principles of smoke prevention. L. P. Breckenridge. *Metal Work* 84:834-5 D 31 '15
- Examples of boiler-room economies. O. Monnett. *Power* 44:146-7 Jl 25 '16
- Fuel losses caused by smoking chimneys. L. D. Breckenridge. *Metal Work* 85:130 Ja 21 '16
- Furnace used with hand-fired water-tube boilers in St. Louis to prevent smoke. *diags Elec W* 67:212-13 Ja 22 '16
- How to prevent smoke. C. H. Benjamin. *Factory* 17:288+ S '16
- Instructing firemen to reduce smoke from furnaces. M. A. Rooney. *Power* 44:589-90 O 24 '16
- Making money by stopping the smoke. K. Hawkins. *il Factory* 17:30-2 Jl '16
- Passing of the smoke nuisance in Pittsburgh. *il Power* 43:498 Ap 11 '16
- Pittsburgh's smoke 75% cured. *Eng N* 75:640 Ap 6 '16
- Recent progress in boiler installations and some results of furnace investigations. W. A. Hoffman. *il diags Assn Eng Soc J* 55:149-69 N '15
- Recent progress in electrical smoke precipitation. F. G. Cottrell. *bibliog il diag Eng & Min J* 101:385-92 F 26 '16
- Relation of stokers to smoke abatement. J. G. Worker. *il Textile World* 51:4359+ O 7 '16
- Report of the Selby smelter commission; with accompanying papers. *bibliog il diags charts maps U S Bur Mines Bul* 98:1-528 '15; Abstract. *J Ind & Eng Chem* 7:41-5 Ja '15; Abstract. *Eng & Min J* 98:1075-8 D 19 '14
- Rise of the smokeless boiler. *Heat & Ven* 13: 28-9 O '16
- Smoke abatement; a report on recent investigations made at Washington university. E. L. Ohle. *il diags Assn Eng Soc J* 55:139-43 N '15

Smoke prevention—Continued

- Smoke abatement at a Dayton power plant. C: C. Moore. *il* Power 44:127-8 J1 25 '16
- Smoke abatement at Boston. Power 43:810 Je 6 '16
- Smoke-abatement week in Pittsburgh. Power 44:671 N 7 '16
- Smoke prevention codes for large and small cities. Heat & Ven 13:25-8 O '16
- Smoke situation in Columbus. Power 44:123 J1 25 '16
- Tests of hand-fired furnaces. S. H. Viall. *diags* Power 43:396-9 Mr 21 '16
- United States Supreme court upholds smoke ordinance. Eng N 75:194 Ja 27 '16
- Washing locomotive smoke. M. D. Franey. *diag* plan Ry Age 59:558-60 S 24 '15; Same. Ry Age (Mech ed) 89:511-13 O '15; Same. Power 42:561-3 O 19 '15; Same. Sci Am S 81:61-2 Ja 22 '16; Same cond. Eng N 74:906-7 N 4 '15; Excerpt. Ry R 57:387-8 S 25 '15; Abstract. Engineer 121:180 F 25 '16
- What is satisfactory smoke abatement? use of Ringel-Mann scale. M. A. Rooney. *il* Heat & Ven 13:19-21 O '16
- See also* Chimneys; Combustion; Firing; Locomotives—Smoke problem; Smelter fumes; Stokers, Mechanical
- Smoke prevention association**
11th annual convention. St. Louis, Sept. 26-29. Power 44:536 O 10 '16
- Smoke recorder**
Indicating smoke density on U. S. S. Conyngham. R. T. Hall. *il* *diag* Power 44:767-8 N 28 '16
- Smoke indicator. *diag* Am Gas Light J 103:397 D 20 '15
- Smokeless powder**
Researches upon ordnance firing. Sci Am 115:172 Ag 19 '16
- Smokestacks.** *See* Chimneys
- Smoking.** *See* Tobacco, Physiological effects of
- Smoky river**
River of mud. C. S. Rindsfoos. Sci Am 114:553 My 27 '16
- Snakes**
Snakes and their value to the agriculturist. W. H. McClellan. Sci Am S 80:393 D 18 '15
- Value of snakes. R. W. Shufeldt. Sci Am S 81:16 Ja 1 '16
- Snow**
Heavily loaded with snow. St. James cathedral dome, Seattle, falls. *il* Eng Rec 73:244-5 F 19 '16
- Melted snow supplies water to arid district. plan Eng N 76:435 S 7 '16
- Region of the greatest snowfall. A. H. Palmer. *il* Sci Am S 81:88-90 F 5 '16
- Snow brush.** *See* Ceanothus velutinus
- Snow plows**
Auto truck snow plow. *il* Munic Eng 50:79 F '16
- Combined work car, snowplow and sweeper. *il* Elec Ry J 47:465 Mr 4 '16
- Emergency snow-fighting equipment. W. G. Murrin. *il* *diags* Elec Ry J 47:658-9 Ap 1 '16
- Emergency snow-fighting equipment in western Canada. F. D. Archibald. *il* Elec Ry J 47:868 My 6 '16
- Independently mounted snow plow. *il* *diag* Elec Ry J 47:94 Ja 8 '16
- Snow removal**
Cleaning up after snowstorms in Philadelphia. W: H. Connell. *il* Eng N 75:221-4 F 3 '16
- Doing away with hand shoveling. in snow removal. *il* Elec Ry J 47:49-50 Ja 1 '16
- Efficient snow-fighting system. New York city. *il* Elec Ry J 47:308 F 12 '16
- Methods of snow removal suitable for municipalities having populations of less than 200,000. L. F. Peck. Munic J 40:402 Mr 23 '16
- Prompt snow removal in Philadelphia. W: H. Connell. *il* Munic Eng 50:220-3 Je '16
- Removal of snow in parks. H. S. Richards. *il* Munic Eng 51:181-3 N '16; Same cond. Good Roads n s 12:200-1 N 4 '16; Excerpt. Munic J 41:514 O 26 '16; Excerpt. Eng & Contr 46:419 N 8 '16
- Roller heater melts snow to permit finishing asphalt macadam. *il* Munic Eng 50:240-1 Je '16

- Snow-fighting apparatus. H. Bates. Elec Ry J 47:162-3 Ja 22 '16
- Snow removal by melting. Munic J 39:946-7 D 23 '15
- Snow-removal conference held in New York. March 8. Eng N 75:525 Mr 16 '16; Munic J 40:372-3 Mr 16 '16
- Snow removal in New York city. J. T. Fetherston. Good Roads n s 10:322 D 18 '15
- Systematic snow removal in New York city. *il* Munic Eng 50:47-50 F '16
- Use of the snow alarm in Philadelphia. W: H. Connell. Good Roads n s 11:184-5 Ap 15 '16; Excerpt. Eng & Contr 45:368 Ap 19 '16
- See also* Electric railroads—Snow protection and removal; Railroads—Snow protection and removal; Snow plows

Snow survey

- Methods and cost of making a snow survey for irrigation system. F. T. Cummings. *il* Eng & Contr 46:189-92 Ag 30 '16

Soap

- Electricity in soap manufacture. *il* Elec R & W Elec'n 67:1139-42 D 25 '15
- Hydrogenated oils in the soap industry. C. Ellis. Sci Am S 82:59 J1 22 '16
- Kreibitz process of soap-making and glycerol recovery. G. A. Wrisley. J Ind & Eng Chem 8:732-3 Ag '16
- Protection of car finishes. C. F. Woods. Elec Ry J 47:91-2 Ja 8 '16
- Reliable methods for testing mill soaps. Textile World 51:3027, 3547 J1 1, Ag 12 '16
- Results of relative surface tension measurements of solutions of soap and of solutions of soap and various alkalies. H. G. Elledge and J. J. Isherwood. J Ind & Eng Chem 8:793-4 S '16
- Studies of soap solutions. V: Lenher and M. V. R. Buell. J Ind & Eng Chem 8:701-3 Ag '16
- See also* Soap powders

Soap bubbles

- Soap bubbles that last for months. *il* Sci Am 114:558 My 27 '16

Soap films

- Capillarity and soap films. *diag* Sci Am S 81:409 Je 24 '16

Soap powders

- Analysis of soap powders. L: Rosenberg and V: Lenher. J Ind & Eng Chem 8:716-19 Ag '16

Social centers

- Ideal and the actual in a school and recreation center. *il* Am Inst Arch J 4:165-7 Ap '16
- Neighborhood centers in Chicago. J. Hudnut. *il* plan Am Inst Arch J 4:68-70 F '16
- Steel maker gives farm to Sharon. C. F. Williams. *il* Iron Tr R 59:324-5 Ag 17 '16

Social work

- See also* Industrial betterment; Social centers; Welfare work in industry

Societies

- See also* Corporations; Engineering societies; Railroad associations; Trade unions

Society of automobile engineers

- Activities of the engineers. *il* map Horseless Age 37:439 Je 1 '16
- Annual convention on S.S. Noronic, June 12-16. *il* Automobile 34:1063-5, 1103-4 Je 15 '16
- Annual general meeting. Automobile 34:10-23, 49-50 Ja 6 '16
- Day by day at the S. A. E. meeting. Horseless Age 37:72-4 Ja 15 '16
- Detroit S. A. E. banquet. Automobile 33:1102-5 D 16 '15
- Digest of S. A. E. papers to be read on S.S. Noronic, 1916 meeting. Automobile 34:1033-7 Je 8 '16
- Government transportation plans; work of the Society of automobile engineers in standardizing parts. C. F. Clarkson. Sci Am 114:582 Je 3 '16
- High spots in S. A. E. history; tracing the growth of the society. C. F. Clarkson. Automobile 34:1009-11+ Je 8 '16
- Industry's debt to the S. A. E. R. Huff. Automobile 34:1019 Je 8 '16
- Pennsylvania S. A. E. section completes organization. Automobile 34:378-9 F 24 '16

Society of automobile engineers—Continued

- President and president-elect review the work accomplished and the tasks ahead of the society. *Automobile* 34:87-9 Ja 13 '16
- Resumé of the business and social activities of the automobile engineers on their four-day cruise on Lake Huron. *il Horseless Age* 38:511-16+ J1 1 '16
- S. A. E. decides to change title. *il Automobile* 34:1109-13 Je 22 '16
- S. A. E. influence spreads during 1915. *Automobile* 33:1132 D 23 '15
- Standards committee. *Automobile* 34:1012-15 Je 8 '16

Society of chemical industry

- Annual general meeting, Edinburgh, July 19-21. *Engineer* 122:69-70, 92-3 J1 28-Ag 4 '16

Society of naval architects and marine engineers

- 23d annual convention, New York, Nov. 18-19: abstracts of papers. *Int Marine Eng* 20:540-9 D '15

Society of railway financial officers

- 9th annual meeting, Washington, D. C., Oct. 18-19. *Ry Age* 61:753-7 O 27 '16

Socket appliances. See Electric apparatus and appliances**Soda asbestos**

- New tube for soda lime—a new absorbent for carbon dioxide in steel analysis. G. L. Kelley. *diag J Ind & Eng Chem* 8:1038-9 N '16

Sodium

- Apparatus for the manufacture of sodium and sodium alloys patented by E. A. Ashcroft. *Met & Chem Eng* 14:57 Ja 1 '16
- Influence of some solvents on the rate of action of sodium with isoamylbromide. P. W. Carleton. *Am Chem Soc J* 38:1128-36 My '16
- Simple sodium lamp for polariscope. G. K. Foresman. *J Ind & Eng Chem* 8:165 F '16

Sodium bisulphate

- Bisulphate of soda (nitre cake) in dyeing. L. J. Matos. *Textile World* 51:1565 My 27 '16

Sodium chloride

- Effect of sodium chloride upon the action of invertase. H. A. Fales and J. M. Nelson. *Am Chem Soc J* 37:2769-86 D '15

Sodium hydroxide

- Efficiency of calcium chloride, sodium hydroxide and potassium hydroxide as drying agents. G. P. Baxter and H. W. Starkweather. *Am Chem Soc J* 38:2038-41 O '16
- Recovering caustic from mercerizing washings. H. Austin. *Textile World* 51:1559 Mr 25 '16

Sodium methylate

- Action of sodium methylate upon the products of nitration of ortho-, para- and meta-chlorotoluenes. H. S. Fry. *Am Chem Soc J* 38:1327-33 J1 '16

Sodium nitrate. See Saltpeter, Chile**Sodium perborate**

- Electrolytic preparation of perborate. K. Arndt. *Met & Chem Eng* 13:965-6 D 15 '15

Sodium pyrogallate

- Sodium pyrogallate as a reagent for the determination of oxygen. J. W. Shipley. *diags Am Chem Soc J* 38:1687-1701 S '16

Sodium sulphate

- Sodium sulfate as a substitute for potassium sulfate in the Gunning modifications for determining nitrogen. W. L. Latshaw. *J Ind & Eng Chem* 8:586-7 J1 '16

Softening of water. See Water softening**Soil analysis**

- Acid soils and the effect of acid phosphate and other fertilizers upon them. S. D. Conner. *J Ind & Eng Chem* 8:35-40 Ja '16
- Active and latent soil acidity vs. immediate and continued lime requirement. E. Truog. *J Ind & Eng Chem* 8:756-7 Ag '16
- Amino acid nitrogen of soil. R. S. Potter and R. S. Snyder. *J Ind & Eng Chem* 7:1049-53 D '15
- Comparison of methods for the determination of soil phosphorus. W. O. Robinson. *J Ind & Eng Chem* 8:148-51 F '16

- Estimation of carbon dioxide as barium carbonate applied to the Marr method for determination of carbonates in soil. C. J. Schollenberger. *J Ind & Eng Chem* 8:427-8 My '16

- Immediate and continued lime requirement vs. active and latent soil acidity. W. H. MacIntire. *J Ind & Eng Chem* 8:572 Je '16

- Method of extraction as affecting the determination of phosphoric acid in soils. H. Hale and W. L. Hartley. *J Ind & Eng Chem* 8:1028-9 N '16

- New apparatus for the determination of soil carbonates and new methods for the determination of soil acidity. E. Truog. *diag J Ind & Eng Chem* 8:341-5 Ap '16

- Rapid method for the accurate determination of total carbon in soils. R. M. Salter. *diag J Ind & Eng Chem* 8:637-9 J1 '16

See also Soil sampling

Soil inoculation

- Bacterized peat; the problem in relation to plant nutrition. W. B. Bottomley. *Sci Am S* 82:267 O 21 '16

Soil pressure. See Earth pressure**Soil sampling**

- Successful soil-sampling tools. A. M. Shaw. *diags Eng N* 74:1223 D 23 '15; Same cond. *Eng & Min J* 101:223 Ja 29 '16

Soils

- Agronomic and soil conditions in the Selby smoke zone. C. F. Shaw and E. E. Free. *U S Bur Mines Bul* 98:450-62 '15

- Comparison of lime requirement methods. J. W. Ames and C. J. Schollenberger. *J Ind & Eng Chem* 8:243-6 Mr '16

- Development of a dynamic theory of soil fertility. F. K. Cameron. *J Fr Inst* 181:27-49 Ja '16

- Nitrogen problem in arid soils. C. B. Lipman. *Sci Am S* 81:23 Ja 8 '16

- Plant food deficiencies of Coastal Plain and Piedmont soils. C. B. Williams. *J Ind & Eng Chem* 8:823-4 S '16

- Principles of crop production. E. J. Russell. *il Sci Am S* 82:28-31 J1 8 '16

- Salts, soil-colloids and soils. L. T. Sharp. *Sci Am S* 81:234-5 Ap 8 '16

- Testing various soils for drainage properties. J. R. Haswell. *il Eng N* 76:211-14 Ag 3 '16

- See also Agricultural chemistry; Agriculture; Drainage; Fertilizers and manures; Foundation soils; Irrigation; Nitrification; Soil analysis

Soils, Foundation. See Foundation soils**Solar heaters**

- Putting the sun to work in supplying hot water. *il Sci Am* 115:157 Ag 12 '16

Solar power

- Can we put the sun to work? K. P. Frederick. *il Sci Am* 115:329+ O 7 '16
- Power from the sun. *Sci Am* 115:342-3 O 7 '16

Solar radiation

- Luminous efficiency of the solar radiation. H. E. Ives. *Illum Eng Soc* 11:888-90 no 3 '16
- Problem of the chemical origin of solar radiation. E. Briner. *Sci Am S* 82:98-9 Ag 12 '16
- Solar constant of radiation. *Sci Am* 114:175 F 12 '16

Solder and soldering

- Chemistry of fluxes. *Metal Work* 86:597 N 10 '16
- Electric soldering irons. *il Elec W* 68:1113 D 2 '16
- Haven soldering lamp. *il Elec R & W Elec'n* 69:261 Ag 5 '16
- Manufacture of soft solder from scrap metals. A. Bregman. *il Metal Ind n s* 14:59-62 F '16
- Manufacture of solder from scrap white metals. C. F. Loebe. *Metal Ind n s* 14:323-4 Ag '16; Same. *Metal Work* 86:671 D 1 '16
- Small heat-retaining soldering iron. R. H. Parsons. *diags Elec Ry J* 47:507 Mr 11 '16
- Soldering aluminum. *Metal Work* 85:476-7 Ap 7 '16
- Soldering flux. *Metal Work* 86:252 Ag 25 '16
- Soldering of aluminum as a substitute for welding. *Metal Ind n s* 14:256-7 Je '16
- Soldering of aluminum as a substitute for welding. *Sci Am* 114:508-9 My 13 '16

Solder and soldering—Continued

Suggestions on soldering. R. L. Hervey. Power 44:158 S 26 '16

See also Acid handling; Alloys; Plumbing; Welding

Soldiers

Shammed sickness. Sci Am 115:424 N 4 '16

See also Military art and science; Recruiting and enlistment

Soldiers, Disabled

Care of the wounded in France; methods and instruments for aiding men who have lost hands or arms. J. Amar. il diag Sci Am S 82: 348-50 N 25 '16

Motion study for the crippled soldier. F. B. Gilbreth. il Am Soc M E J 37:669-73 D '15; Same. Sci Am S 80:402-3 D 25 '15; Discussion. Am Soc M E J 37:673-5 D '15

Training of maimed soldiers. diags Engineer 121:472-3 Je 9 '16

War cripples in Austria and Germany. Engineer 211:64-5 Ja 21 '16

Sole leather. See Leather**Solenoids**

Determination of the constant of a solenoid. S. R. Williams. diags J Fr Inst 182:353-62 S '16

Solid solutions. See Solutions, Solid**Solids**

Constitution and fundamental properties of solids and liquids. I. Langmuir. Am Chem Soc J 38:2221-95 N '16

Solubility

Allotropy and solubilities in water of ammonium bromide. A. Smith and H. E. Eastlack. Am Chem Soc J 38:1261-6 J1 '16

Complete solubility curve of calcium carbonate. J. Johnston and E. D. Williamson. Am Chem Soc J 38:975-83 My '16

Solubilities of liquids in liquids; the partition of the lower alcohols between water and cottonseed oil. B. B. Wroth and E. E. Reid. Am Chem Soc J 38:2316-25 N '16

Solubilities of several substances in mixed nonaqueous solutions. J. W. Marden and M. V. Doyer. Am Chem Soc J 38:1235-45 Je '16

Solubilities of the sulfates of barium, strontium, calcium and lead in ammonium acetate solutions at 25° and a criticism of the present methods for the separation of these substances by means of ammonium acetate solutions. J. W. Marden. Am Chem Soc J 38:310-16 F '16

Solubility. J. H. Hildebrand. Am Chem Soc J 38:1452-73 Ag '16

Solution (chemistry)

Action of salts with water of hydration and without water of hydration on the velocity of saponification of esters. J. E. L. Holmes and H. C. Jones. Am Chem Soc J 38:105-21 Ja '16

Changes in volume upon solution in water of the halogen salts of the alkali metals. G. P. Baxter and C. C. Wallace. Am Chem Soc J 38:70-105 Ja '16

Density of aqueous solutions of copper sulfate and sulfuric acid. H. D. Holler and E. L. Peffer. Am Chem Soc J 38:1021-9 My '16

Diffusion of iodine in potassium iodide solutions. G. Edgar and S. H. Diggs. diag Am Chem Soc J 38:253-9 F '16

Hydrogen and chlorine ion activities of solutions of potassium chloride in 0.1 molal hydrochloric acid. H. S. Harned. Am Chem Soc J 38:1986-95 O '16

Lowering of the vapor pressure of water produced by dissolved potassium chloride. B. F. Lovelace, J. C. W. Frazer and E. Miller. diags Am Chem Soc J 38:515-28 Mr '16

Nonideal solutions; the activity of a difficultly soluble component. E. K. Strachan. Am Chem Soc J 38:626-32 Mr '16

Partition coefficients of hydrogen peroxide between water and certain organic solvents. J. H. Walton and H. A. Lewis. Am Chem Soc J 38:633-8 Mr '16

Viscosities of solutions of caesium salts in mixed solvents. P. B. Davis and H. C. Jones. Am Chem Soc J 37:2636-42 D '15

See also Boiling points; Chemistry; Colloids; Crystallization; Electrolysis; Electrolytes; Osmosis; Solubility

Solutions, Alcoholic

Viscosity of certain alcoholic solutions. O. F. Tower. il Am Chem Soc J 38:833-44 Ap '16

Solutions, Normal

What is a normal solution? D. B. Liddell. Power 42:448 S 28 '15; Same. Eng & Min J 100:1013 D 18 '15

Solutions, Solid

Colloidal solid solutions. D. McIntosh and R. Edson. Am Chem Soc J 38:613-15 Mr '16

Oxides of iron; solid solution in the system Fe_2O_3 - Fe_3O_4 . R. B. Sosman and J. C. Hostetter. diags Am Chem Soc J 38:807-33 Ap '16

Solid solutions. Sci Am S 82:38-9 J1 15 '16

Solutions, Supersaturated

Supersaturated solutions of liquids in liquids. H. S. Davis. diag Am Chem Soc J 38:1166-78 Je '16

Soot

Atmospheric pollution in English and Scottish towns. J. B. C. Kershaw. il Engineer 120: 473-5 N 19 '15; Same cond. Met & Chem Eng 13:967-71 D 15 '15

Can the formation of soot be prevented? J. Kissick. il Power 43:194-5 F 8 '16

Removing soot from chimney. A. Jackson. Power 44:761 N 28 '16

Soot and its formation. A. D. Williams. Power 43:24-5 Ja 4 '16

See also Boiler cleaning; Smoke prevention

Soot blowers

Bayer soot-blower system. il diag Power 43: 833-4 Je 13 '16

Calorizing as applied to power plant equipment. il Met & Chem Eng 15:498-9 O 15 '16

Diamond model G mechanical soot blowers. il Elec W 68:1068 N 25 '16; Ind Management 52:supl-2 D '16

Insuluminum soot-blower caps. Power 43:45 Ja 11 '16

Mechanical soot blowers. P. V. Stephens. Power 43:784A-784B My 30 '16

Reiter soot blower for fire-tube boiler. il Elec W 68:142 J1 15 '16

Soot blower for water-tube boilers. diag Iron Age 97:1063 My 4 '16; Elec W 67:1182-3 My 20 '16

Soot cleaners

Keeping boiler heating surface clean. il plan Textile World 51:3899+ S 9 '16

Soot cleaner for horizontal boilers. il Iron Age 97:1199 My 18 '16

Vulcan soot cleaners. il diag Elec W 67:1377 Je 10 '16; Power 44:194-5 Ag 8 '16

Soosmith, Charles, 1856-1916

Sketch. por Eng Rec 73:783 Je 10 '16

Sorghum

Denatured alcohol as a substitute for gasoline. S. Pike. Sci Am 114:449 Ap 29 '16

See also Sugar

Soudan. See Sudan**Sound**

Explanation of the double report of gunfire. L. F. J. Zerbe. Sci Am 113:557 D 25 '15

New explanation of sound phenomena. B. F. Miessner. il diag Sci Am S 82:212-14 S 30 '16

Propagation of sound by the atmosphere. C. Davison. Sci Am S 82:240 O 7 '16

Sound propagating and zones of silence. Sci Am S 82:139 Ag 26 '16

32-element harmonic synthesizer. D. C. Miller. bibliog il diags J Fr Inst 181:51-81 Ja '16

See also Noise; Phonograph

Sound-proof construction

Building with sound-proof rooms for the study of music; Northwestern university. il Sci Am 114:454; Ap 29 '16; Same. Bldg Age 33:62-3 Ag '16

Sounding

Wire drag supplements lead line in sounding. Eng Rec 74:350 S 16 '16

South**Industries and resources**

Production of fuels, acids, etc. C. S. Williamson, jr. Am Soc M E J 38:451-2 Je '16

South—Industries and resources—Continued

South's profits \$10,000,000,000—car sales gain.
Automobile 34:461-2, 478-80 Mr 9 '16

South Africa

See also Gold mines and mining—Transvaal; Mines and mineral resources—South Africa

Industries and resources

Early revival of the South African diamond industry. Sci Am 115:255 S 16 '16

South America

See also Latin America; Mines and mineral resources—South America

Commerce

Accessories in South America. D: Beecroft. il Automobile 35:302-6, 344-7, 384-7, 428-9, 472-3 Ag 24-S 21 '16

American investments in South America. P. Farquhar. Iron Age 97:606-8 Mr 9 '16

Buying and selling nonferrous metals of South America. L. Vogelstein. Eng & Min J 101:292-6 F 12 '16

Commercial conditions in South America. A. B. Lueder. Sci Am S 80:407 D 25 '15

Credit conditions in South American countries. J. Matthews. J Account 22:443-50 D '16

How to go after South American trade. R. W. Gifford. Mach 22:497-8 F '16

Lumber markets of the east coast of South America. R. E. Simmons. il U S Bur For & Dom Com 112:1-121 '16

Lumber markets of the west and north coasts of South America. R. E. Simmons. il U S Bur For & Dom Com 117:1-149 '16

Opportunities for South American trade. E. C. de Villaverde. Sci Am 114:553 My 27 '16

Our export trade with Latin-America. Engineer 121:505-6 Je 16 '16

Our South American trade. J. R. Leeson. Textile World 51:1938 Ap 22 '16

Report on trade and tariffs in Brazil, Uruguay, Argentina, Chile, Bolivia, and Peru. U S Fed Tr Comm 246p '16

Selling in South America. M. R. Lamb. Eng & Min J 102:383-5 Ag 26 '16

South America. D: Beecroft. il map Automobile 35:128-35, 170-4, 214-19, 258-61 Jl 27-Ag 17 '16

South American trade. E. Anderson. Sci Am 114:349 Ap 1 '16

Tariff systems of South American countries. F. R. Rutter. U S Bur For & Dom Com tariff ser 34:1-308 '16

Directories

Supplement to trade directory of South America for promotion of American export trade. U S Bur For & Dom Com misc ser 13a:1-37 '15

Industries and resources

Gold and silver deposits in North and South America. W. Lindgren. maps Am Inst Min E Bul 112:721-46 Ap '16

Hydro-electric development in South America. L. W. Schmidt. Power 44:542-5 O 17 '16

Latin-American engineering opportunities. Eng Rec 74:110 Jl 22 '16

Substitutes for coal in the Andes. B: L. Miller and J. T. Singewald, jr. il Coal Age 9:1040-3 Je 17 '16

What the engineer may expect in Latin America. V. L. Havens. Eng Rec 74:179-80 Ag 5 '16

See also Mines and mineral resources—South America; Water power—South America

South Bend, Indiana**Sewerage**

Concrete sewer construction in South Bend. W. E. Graves. Eng & Contr 45:137-8 F 9 '16

Water supply

Maintenance and operation of water works at South Bend. il plan Eng & Contr 45:3-9 Ja 5 '16

South Carolina

See also Geology—South Carolina

South Orange, New Jersey**Railroads**

Flat slab used at Lackawanna South Orange crossing. il diags plan Eng N 75:526-9 Mr 16 '16

Lackawanna improvements at South Orange. A. B. Cohen. il diag plan Ry Age 60:683-7 Mr 24 '16

Small railroad station that pleases the eye. il plan Eng Rec 73:542 Ap 22 '16

Soo terminal type of station, being built by Lackawanna at South Orange, nears completion. il diags plan Eng Rec 73:378-81 Mr 18 '16

South pole. See Antarctic exploration

South Shore country club. See Chicago, Illinois—Clubs

Southampton, Long Island**Architecture**

Two country houses at Southampton, L. I. J: T. Boyd. il plans Arch Rec 39:197-211 Mr '16

Southern California Edison company

Commercial growth. R. J. Ballard. Elec R & W Elec'n 68:70 Ja 8 '16

Los Angeles condemnation hearing. Elec W 67:133-4 Ja 15 '16

Los Angeles situation. Elec W 68:1020 N 18 '16

Southern California Edison case decision. Elec W 68:556-7 S 16 '16

Valuation of Los Angeles distributing system. Elec W 67:192-5 Ja 22 '16

Southern gas association

Presidential address. M. Dexter. Am Gas Light J 104:241-2 Ap 17 '16

Southern Pacific railroad

Annual report for the year ended June 30, 1915. Elec Ry J 47:231-2 Ja 29 '16

Suit for dissolution of the Southern Pacific system. Ry R 57:766-7 D 11 '15

32d annual report for the fiscal year ending June 30, 1916. map Ry Age 61:535-6, 573-7 S 29 '16; Excerpt (Increasing expense of railway operation). Ry R 59:517 O 14 '16

Southern railway

Income account and other statistics. Ry R 59:605-6 O 28 '16

Repairing flood damage on the Southern. il map Ry Age 61:991-4 D 1 '16

22d annual report. map Ry Age 61:683-4, 721-5 O 20 '16

Southern textile association

Southern mill men hold convention. Textile World 51:5013-15+ N 25 '16

Southern textile association's annual meeting. Asheville, N. C., June 16-17. Textile World 51:2931-8 Je 24 '16

Southwestern electrical & gas association

12th annual convention. Galveston, May 17-19. Elec Ry J 47:989-96 My 27 '16

Spain**Commerce**

Export opportunities in a European city. H. S. Foley. il Elec W 68:1047-8 N 25 '16

Description and travel

Bridges of Spain. A. Byne. il Arch Rec 40:434-44 N '16

Industries and resources

Iron mines of the Sierra Menera district of Spain. V: De Ysassi. diags plan map Am Inst Min E Bul 110:237-42 F '16

See Iron industry and trade—Spain

Spalatro, Italy**Architecture**

Palace of Diocletian. F: Lees. il plans Arch Rec 40:549-57 D '16

Spanish America. *See* Latin America

Spanish moss

Spanish moss; the source of a valuable up-holstering material. S: J. Record. il Sci Am 115:58-9 Jl 15 '16

Spark arresters

Ashorn ventilator and spark arrester. diag Heat & Ven 13:55-6 Ja '16

Spark gaps

Effect of rain, moisture, dust, etc. on the spark-over voltage of gaps. Gen Elec R 19:567 Je '16

Operation of a non-synchronous rotating gap. A. S. Blatterman. diags Elec W 68:563-6 S 16 '16

Spark plugs

Types of spark plug. il Automobile 34:142-3 Ja 20 '16

Sparks, Electric. See Electric sparks**Spaulding dam**

Constant angle arch dam. il diags plans Engineer 122:264-6 S 22 '16

Spaulding dam to be raised from 225 to 260 ft. F. G. Mudgett. il Eng N 76:323-9 Ag 17 '16

Speaking arc

Electric oscillatory phenomena of speaking arc. J. P. Van Zandt. diag Elec W 67:1415 Je 17 '16

Specific gravity

Densitometer; a simple balance for determining specific gravity. G. A. Shakespeare. diag Sci Am S 82:347 N 25 '16

Densities and cubical coefficients of expansion of certain substances: As_2O_3 , $PbCl_2$, $PbBr_2$, $NdCl_3$. G. P. Baxter and C. F. Hawkins. Am Chem Soc J 38:266-71 F '16

Densities and cubical coefficients of expansion of the halogen salts of sodium, potassium, rubidium and cesium. G. P. Baxter and C. C. Wallace. Am Chem Soc J 38:259-66 F '16

Rapid pycnometric method for gravity solids in cane-sugar factories. H. S. Walker. J Ind & Eng Chem 8:262-4 Mr '16

Specific gravity apparatus. C. R. Olson. diag Eng & Min J 102:305 Ag 12 '16

Specific gravity studies of Illinois coal. M. L. Nebel. il diags Ill U Eng Exp Sta Bul 89:1-49 '16; Abstract. Am Soc M E J 38:1035-6 D '16

Standard density and volumetric tables. U S Bur Stand Circ 19:1-65 '16

See also Hydrometers

Specifications

Alternate specifications for public work. C. D. Hill. Eng N 74:1188-9 D 16 '15

Equitable specifications and contracts. H. F. Hackedorn. Assn Eng Soc J 55:198-211 D '15; Same cond. Eng Rec 73:75-6 Ja 15 '16; Same cond. Am Soc M E J 38:388-90 My '16; Discussion. Assn Eng Soc J 55:211-19 D '15

Fairness and definiteness in specification writing. N. T. Veatch, jr. Eng & Contr 45:236-7 Mr 8 '16

Making specifications handy for the contractor. Eng Rec 74:352 S 16 '16

New York specifications for purchase of supplies; hypochlorite, wood paving block and piles. Munic J 41:450 O 12 '16

Results of co-operation between the engineer and the foundry. J. H. Hall. Iron Tr R 59:512-13+ S 14 '16; Same. Foundry 44:461-3 N '16; Abstract. Iron Age 98:651 S 21 '16

What you ought to expect of purchase specifications. L. C. Wilson. Factory 17:249-51 S '16

See also Standards, Engineering; also subdivision Specifications under names of subjects, e.g. Alloys—Specifications; Automobiles—Specifications

Spectacled soldiers. See Recruiting and enlistment**Spectacles**

Diving spectacles. il Sci Am S 82:197 S 23 '16

See also Goggles

Spectra

Extension of the spectrum beyond the Schumann region. Sci Am 114:176 F 12 '16

Extension of the spectrum beyond the Schumann region. T. Lyman. il Sci Am S 82:146-7, 167 S 2-9 '16

Single-line spectra of magnesium and other metals and their ionizing potentials. J. C. McLennan. il diags J Fr Inst 181:191-207 F '16

Suggested mutual repulsion of Fraunhofer lines. C: E. St. John. Sci Am S 82:272 O 21 '16

Transformation of color-mixture equations from one system to another. H. E. Ives. J Fr Inst 180:685-92 D '15

X-ray spectrum of tungsten. A. W. Hull. il diags Gen Elec R 19:603-10 Jl '16; Same. Sci Am S 82:308-10 N 11 '16

See also Diffraction; Light; Radioactivity; Ultra-violet rays

Spectrophotography

Filter for spectrophotography. M. Luckiesh. J Fr Inst 181:577-8 Ap '16

Spectrophotometry

Spectrophotometric study of copper complexes and the biuret reaction. P. A. Kober and A. B. Haw. il diag Am Chem Soc J 38:357-72 F '16

Speech

Speech, its culture and refinement; what is done for it in Holland. N. J. P. Van Baggen. Sci Am S 82:283 O 28 '16

True nature of speech; with application to a voice-operated phonographic alphabet writing machine. J. B. Flowers. il diags Am Inst E E Pro 35:183-201 F '16; Abstract. Eng M 50:937 Mr '16

Voice-controlled writing machine. il diags Sci Am 114:174 F 12 '16

See also Stammering

Speed

Critical speeds of shafts. W. M. Wallace. diags Engineer 121:495, 518-19, 539-40 Je 16-30 '16

Whirling speed of shafts. W. M. Wallace. Engineer 122:113-15 Ag 11 '16

Speed of ships. See Ships, Speed of**Speed regulation.** See Governors (machinery)**Speed sighting**

Speed sighting and wind deflection in artillery. G: Greenhill. diags Engineer 122:133-4 Ag 18 '16

Speed variation

Adjustable speed induction motors. il diags Engineer 121:528 Je 23 '16; Same cond. Elec W 68:534-5 S 9 '16

Cleveland full automatic motor-driven machine. il diags Mach 23:73-5 S '16

Differential feed motion for spinning and twisting. diags Textile World 51:357+ Ag 12 '16

Differential speed reducing mechanism. diag Iron Age 98:822 O 12 '16

Speedometers

Air-friction speedometer. il diag Horseless Age 37:278-9 Ap 1 '16

Automobile speedometer that operates by air friction. il Sci Am 114:398 Ap 15 '16

Better trip reset on 1916 speedometers. diags Automobile 34:136-8+ Ja 20 '16

New speedometer easily attached. il Automobile 35:321 Ag 24 '16

Waltham speedometer. il diags Automobile 34:580-2 Mr 30 '16

Speedways

Grandstand for the Chicago automobile speedway. il diags Eng N 74:1166-7 D 16 '15

1915—a record year for speedways. Automobile 33:1133+ D 23 '15

Spelling

See also Compound words

Spelter. See Zinc**Sphagnum moss**

Bog moss for surgical dressings. C: M. Maigne. il Sci Am 113:521 D 11 '15

Sphere

Mathematicians and computers solve sphere problem. Eng N 75:518-20 Mr 16 '16

Sphere cut by any two planes; volume of slice. J. E. Boyd. Eng N 75:1228 Je 29 '16

Sphere gap

Source of error when using the sphere gap. R. H. Marvin. Elec W 67:649-50 Mr 18 '16

Spice-bush. See Calycanthus occidentalis

Spices

Inhibiting action of certain spices on the growth of microorganisms. F. M. Bachmann. *diag J Ind & Eng Chem* 8:620-3 J1 '16

Spiders

Observations on the economy of the house spider, *tegenaria atrica*. T. Savory. *Sci Am* S 82:361 D 2 '16

Spikes (railroad)

Russian dog-eared railroad spike. *diags Iron Age* 98:129 J1 20 '16
Screw spikes for New York Connecting railroad. *diags Eng Rec* 74:533 O 28 '16
Specification for steel track spikes and tentative specifications for steel screw spikes. *Ry Age* 61:16 J1 7 '16

Spillways

Spillways of the Panama canal. E. C. Sherman. *il diags Boston Soc C E J* 3:135-51 Ap '16

See also Dams

Spindles

Chapman ball bearing spindle. *il Textile World* 51:3965 S 9 '16
Loom and spindle. L. Hooper. *Sci Am* S 81:265 Ap 22 '16
Oiling ball bearing spindle. *diag Textile World* 51:2357 My 13 '16

Spinning

Reducing waste in the spinning room. *Textile World* 51:205+ D 18 '15
Spinning and weaving in early times. H. R. Carter. *Sci Am* S 82:154-5 S 2 '16

See also Cotton spinning; Textile industry and fabrics; Yarn

Spinning machinery

Covering and care of compression rollers. J. Brown. *diags Textile World* 51:417+ Ja 8 '16
Device to prevent spreading of fibers in spinning. *il Textile World* 51:345 Ja 1 '16
Improvement in spinning frames. *il Textile World* 51:343+ Ja 1 '16
Improvement in top roll weighting for spinning frames. *diag Textile World* 51:2355+ My 13 '16
Paper thread and cloth; a substitute for cotton. W. Heinke. *il Met & Chem Eng* 14:284-5 Mr 1 '16
Roving creel for spinning and doubling frames. *il Textile World* 51:193 D 18 '15
Spinning worsted around a cotton thread. *Textile World* 51:4457+ O 14 '16

See also Spindles

Spiral gearing. *See Gearing, Spiral***Spirals**

Spiral of Archimedes; its practical value to the modern craftsman. H. G. Schaefer. *diags Sci Am* 115:280 S 23 '16

Splices. *See Knots and splices***Spokane, Washington****Bridges**

Collapse of bridge at Spokane not yet explained. *il diag Eng N* 75:92-3 Ja 13 '16
Eye-bar failure at low stress causes bridge collapse. *Eng N* 74:1289-90 D 30 '15

Railroads

Extensive grade separation at Spokane. *il diags Ry Age* 60:949-52 Ap 28 '16

Spontaneous combustion

Prevention of spontaneous combustion of coal. J. F. Springer. *Ry Mech Eng* 90:179-80 Ap '16
Spontaneous combustion of coal. J. F. Springer. *Ry Mech Eng* 90:124-6 Mr '16
Spontaneous ignition studied by means of photographic plates. F. J. Hoxie. *il Am Soc M E J* 38:997-9 D '16
Storage of coal. J. B. C. Kershaw. *Coal Age* 9:168-9 Ja 22 '16

Spontaneous generation. *See Generation, Spontaneous***Spools**

Automatic spiral yarn tension device. *il Textile World* 51:119 D 11 '15
Cross wind for spoolers. *Textile World* 51:1639+ Ap 1 '16
Upright bobbin spooler. *il Textile World* 51:749 Ja 15 '16

Spools

Blandin lock spool and bobbin painting machine. *il Textile World* 51:2339+ My 13 '16

Spot welding. *See Electric welding***Spring Lake, New Jersey****Hotels**

New Monmouth hotel; views and plan. *Arch Rec* 39:40-5 Ja '16

Spring motors

High-power spring motor. S. Helweg. *diags Mach* 22:687-8 Ap '16

Springfield, Massachusetts**Water supply**

Intermittent excess coagulant at Springfield. E. E. Lochridge. *Eng N* 76:617 S 28 '16; Same. *Eng & Contr* 46:316-17 O 11 '16

Springs (mechanism)

Automobile cushion springs; methods of japanning and means of conveying product. E. F. Lake. *il diag plan Mach* 22:1071-6 Ag '16
Combination pneumatic spring shear and bender. J. H. Chancy. *diags Ry Mech Eng* 90:596 N '16
Graphical determination of particulars for spiral springs. A. Hoare. *Int Marine Eng* 21:163-4 Mr '16
Helical springs under centrifugal action. J. S. Myers. *diags Mach* 22:400-3 Ja '16
Machine for forming elliptic springs. *diags Iron Age* 97:1497 Je 22 '16
Ryerson spring forming machine. *il Iron Tr R* 58:1337 Je 15 '16
See also Automobiles—Springs; Motor trucks—Springs

Sprinklers

Coughlin coal sprinkler for locomotive tenders. *diags Ry R* 58:346-7 Mr 4 '16
Machining an automatic sprinkler head. *diags Mach* 23:49-50 S '16
Sprinkling car for mine use. F. F. Jorgensen. *il diags Coal Age* 10:584-5 O 7 '16

Sprinkling of streets. *See Street sprinkling***Sprocket wheels**

Design and construction of sprockets. B. D. Pinkney. *diags Mach* 22:407-10 Ja '16

Spruce

Spruce and balsam fir trees of the Rocky mountain region. G. E. Sudworth. *il 10 maps U S Agric Bul* 327:1-43 '16

Spruce gum

Spruce gum industry. S. J. Record. *il Sci Am* 114:660 Je 24 '16

Spur-gearing. *See Gearing***Square (instrument)**

Framing with the steel square. *Bldg Age* 38:60-1 Ap '16
Roof framing with the steel square. D. P. Barry. *Bldg Age* 37:45-6 O '15; 38:45-6 Ja; 49-50 Mr '16
Steel square and roof framing. *diags Bldg Age* 38:35-8 S '16

Stability of ships. *See Ships—Stability***Stables.** *See Barns and stables; Mine stables***Stables, Mine.** *See Mine stables***Stacks.** *See Chimneys***Stadia**

Architectural possibilities of reinforced concrete shown in College of the city of New York stadium. *il diags Eng Rec* 73:10-12 Ja 1 '16
Concrete stadium a part of a high school building; Central high school, Washington, D. C. *il diags Eng N* 75:138-9 Ja 20 '16
Flood-lighting the Harvard football practice field. *il Elec W* 68:772 O 14 '16
Yale bowl. T. C. Atwood. *il diags plan Boston Soc C E J* 3:231-58 Je '16; Excerpts. *Eng & Contr* 46:52-3 J1 19 '16

Stage lighting

Dimmer for 1,000-watt spotlight. *il Elec R & W Elec'n* 69:173 J1 22 '16; *Elec W* 67:1483 Je 24 '16
Disappearing footlight furnished in complete finished sections. *il diag Elec R & W Elec'n* 69:862 N 11 '16; *Elec W* 68:969-70 N 11 '16

Stage lighting—Continued

- Indoor and outdoor stage-lighting outfit. il plan Elec R & W Elec'n 69:678-89 O 14 '16
- Possibilities of stage lighting together with an account of several recent productions; with discussion. E. Jones. il diags Illum Eng Soc 11:547-72 no 5 '16
- Recent developments in electric incandescent lamps in relation to illuminating engineering. J. T. Morris. il diags Illum Engr 9:9-11 Ja '16
- Special stage lighting and flood lighting of a great outdoor pageant. il Elec R & W Elec'n 69:483-4 S 9 '16
- Theater-dimmer installation in Oakland's new municipal auditorium. il Elec R & W Elec'n 69:40 J1 1 '16

Stage mechanism

- Treasure Island's realistic ship. il Sci Am 114:201+ F 19 '16

Stage scenery. See Theaters—Stage scenery**Stained glass**

- Panel of stained glass; reproduction. Am Inst Arch J 4:6 Ja '16

Stains and staining

- Woods and stains. Bldg Age 38:21+ My '16

Stair building

- Laying out face mold in stair work. diags Bldg Age 38:49-51 Ja '16
- New device makes concrete step building easy. il Concrete 8:94 F '16
- Sand molds for making steps. diag Concrete 8:75 F '16
- Simple concrete step construction. il Am Gas Light J 103:413 D 27 '15; Same. Bldg Age 38:71-2 F '16

Stairs. See Stairways**Stairways**

- Safe-stairway specifications. H. W. Mowery. Eng N 75:434 Mr 2 '16
- Stairway in Johnson house, Newburyport, Mass.; measured and drawn by G. Robb. Brickb 25:125-6 My '16
- Steel stair tower for bluff. St. Paul. Minn. diags Eng N 75:502 Mr 16 '16
- See also Stair building

Stairways, Concrete

- Economical precast stairway design developed for Panama canal lighthouse. W. F. Beyer. il diag Eng Rec 74:139-40 J1 29 '16
- Reinforced-concrete stairway. diags Eng N 76:950 N 16 '16
- Reinforced-concrete stairway for hillside footway at Passaic, N. J. R. F. Odell. il diags plan Eng N 75:1128-9 Je 15 '16
- Stairs cast in separate units for Boston transit commission. W. B. Conant. il diag Concrete 8:199-200 My '16
- Unique helical stairway is within center well, in Southwest Museum, Los Angeles. F. Reed. il Eng Rec 73:82 Ja 15 '16

Stammering

- Psychological analysis of stuttering. W. B. Swift. Sci Am S 81:2-3 Ja 1 '16
- Stammering, its own explanation. E. Tompkins. Sci Am S 81:96 F 5 '16

Stamp mills

- Replacing mortar blocks in stamp mills. C. Labbe. diag Eng & Min J 102:391-2 Ag 26 '16
- West Australian stamp practice. Eng & Min J 101:224 Ja 29 '16

See also Crushing machinery

Stamping

See also Dies; Sheet metal work

Stamps, Steel

- Manufacturing steel stamps and dies. il Iron Tr R 58:767 Ap 6 '16

Standard buildings. See Buildings, Standard**Standard documents**

- Relations between the architect and the master steam fitter. D. K. Boyd. Heat & Ven 13:28-33 Ag '16

"Standard documents" of American institute of architects. Eng Rec 73:699-701 My 27 '16

Standard gas & electric company

- Annual report for 1915. Elec W 67:788-9 Ap 1 '16

Standard time. See Time

Standards, Bureau of. See United States—Standards, Bureau of

Standards, Chemical. See Chemicals—Standards

Standards, Electric. See Electric standards

Standards, Engineering

- British standardization aids industries. Eng Rec 74:469-70 O 14 '16
- Plea for international standards. W: R. Webster. Iron Tr R 58:1422-3 Je 29 '16
- Progress in international standardization effective; work of the British committee. C. Le Maistre. Elec W 67:1458-9 Je 24 '16
- Recent developments in the standardization of pipe and pipe fittings. C. W. Ham. diags Sibley J 30:198-201 Mr '16
- Standardization. C. Le Maistre. Am Inst E E Pro 35:1377-84; Discussion. 1385-8 S '16
- Taylor system applied in Franklin management. G: D. Babcock. il diags Eng M 52:177-85, 339-54 N-D '16
- Testing society sends standard cement specifications to letter ballot. Eng Rec 74:59+ J1 8 '16

See also Automobiles—Standards; Chisels: Electric railroads—Standards; Electric standards; Foundry standards; Gas—Standards; Light—Standards; Machine tools—Standards; Railroads—Standards; United States—Standards, Bureau of

Standards, Printing. See Printing, Practical—Standards

Standards of length

- English measures of length; the history of their origin and development. C: M. Watson. Sci Am S 81:125-7 F 19 '16

Standpipes

- Combination standpipes and elevated water tanks. il diag Eng N 76:692-3 O 12 '16
- Composite standpipe; steel on reinforced concrete base. diags Eng N 75:270 F 10 '16
- Computing costs of cleaning and painting water works standpipes. Eng & Contr 46:234 S 13 '16
- Mercury column alarm for standpipes. W. E. Haseltine. diag Am Water Works Assn J 3:104-6 Mr '16
- Selecting economical type of riveted joint for steel pipes and standpipes. F. H. Carter. Eng Rec 74:467-9 O 14 '16
- Water equalization between distant standpipes. C: W. Sherman. plan Eng N 75:1030 Je 1 '16

See also Water towers

Standpipes, Concrete

- Building 50,000-gal. concrete standpipe in 40 hours. G: A. Sampson. il diags Eng N 74:1226-7 D 23 '15
- Spacing diagram for hoop reinforcing for reinforced concrete standpipes. F. H. Carter. Eng & Contr 46:133 Ag 9 '16

See also Water towers, Concrete

Stanley, William, 1858-1916

- Sketch. por Elec R & W Elec'n 68:887 My 20 '16; Elec W 67:1193-4 My 20 '16; Gen Elec R 19:660-1 J1 '16; J Fr Inst 182:118-19+ J1 '16

Stannous chloride

- Oxidation and reduction without the addition of acid; reaction between stannous chloride and potassium dichromate; a contribution to colloid-chemistry. M. Neidle and J. C. Witt. Am Chem Soc J 38:47-52 Ja '16

Starch

- Chemical composition of commercial glucose and its digestibility. J. A. Wesener and G. L. Teller. J Ind & Eng Chem 8:1009-20 N '16

- Determination of the gelatinizing temperature of the starches from the grain sorghums by means of a thermo-slide. C. K. Francis and O. C. Smith. il diags J Ind & Eng Chem 8:509-11 Je '16

Experiments upon starch as substrate for enzyme action. H. C. Sherman and J. C. Baker. Am Chem Soc J 38:1885-1904 S '16

- Phosphoric acid in starch. J: H. Northrop and J. M. Nelson. Am Chem Soc J 38:472-9 F '16

Starch—Continued

- Products of the action of certain amylases upon soluble starch, with special reference to the formation of glucose. H. C. Sherman and P. W. Punnett. *Am Chem Soc J* 38:1877-85 S '16
- Starch for sizing purposes. P. Bean. *Textile World* 51:291+ D 25 '15
- Strength of starch. *il Textile World* 51:353+ Ja 1 '16
- Textile starches; properties useful to mills. G. M. MacNider. *il Textile World* 51:5019+ N 25 '16

Stars

- Construction of the heavens. F. W. Dyson. *Sci Am S* 81:66-7 Ja 29 '16
- Finding your way at night without a compass. W. A. Tilney. *il Sci Am S* 81:220-2 Ap 1 '16
- Sidereal center; considerations tending to indicate that Canopus occupies this position. O. R. Walkey. *diag Sci Am S* 81:386-7+ Je 17 '16
- Structure of the universe. H. S. Jones. *Sci Am S* 80:370-1, 391 D 11-18 '15
- See also Astronomy*

State debts. *See Debts, Public***State finance**

- Finances of the states. *Am Ind* 17:28-9 O '16

State geologists

- State geological and mining officials. *Eng & Min J* 101:104 Ja 8 '16

State governments

- Trend and comparative cost of government. H. E. Mulnix. *J Account* 21:184-8 Mr '16

State regulation of industry. *See Government regulation of industry***State universities.** *See Colleges and universities***Static electricity.** *See Electricity, Static***Stationery**

- Uniformity in stationery items. J. L. Frazier. *Inland Ptr* 57:785-7 S '16

Stations, Railroad. *See Railroads—Stations***Statisticians**

- Work of the statistician. W. E. Jones. *Elec Ry J* 48:777-9 O 14 '16

Statistics. *See subdivision Statistics under names of subjects, e.g. Railroads—Statistics***Staybolt machines**

- Adjustable dethreading attachment for staybolt machines. *diags Ry Mech Eng* 90:481-2 S '16

Staybolts

- Performance of flexible staybolts. *Ry R* 59:178 Ag 5 '16
- Pitches for screw stays. *table Int Marine Eng* 21:78 F '16
- Visits of inspector Brown. J. E. Terman. *il Power* 42:782-3 D 7 '15

Steam

- Advantages of and obstacles to adopting higher steam pressures. R. Cramer. *Elec W* 68:130 Jl 15 '16
- Conveying and applying concrete by steam. *il Sci Am* 114:379+ Ap 8 '16
- Ellenwood steam charts. C. H. Berry. *Sibley J* 30:257-64 My '16
- Errors in steam tables; abstract. *Am Soc M E* J 38:677 Ag '16
- Is customer furnished dry steam? *diags Metal Work* 85:386 Mr 17 '16
- Maintaining uniform steam pressures with fluctuating steam demands. *il charts Elec W* 67:1480 Je 24 '16
- Odd jobs that steam can do; photographs. *Factory* 17:18-19 Jl '16
- Rule for expansion of steam. H. A. Everett. *Int Marine Eng* 21:257 My '16
- Steam flashing from hot water. *Power* 44:130 Jl 25 '16
- Steam needed by perfect engine. F. R. Low. *table Power* 44:642-3 N 7 '16
- Using steam heat for melting the softer metals; abstract. R. Cramer. *J Fr Inst* 182:510 O '16

- Volume of steam at a given pressure. *Mach* 23:62 S '16

See also Boilers; Condensers (steam); Evaporators; Exhaust steam; Steam engineering; Steam engines; Steam flow; Steam heating; Steam pipes; Steam turbines; Steamboats; Thermodynamics

Cost

- Boiler-room cost curves. J. D. Morgan. *Power* 44:19-20 Jl 4 '16
- Central-station heating plant operation in Milwaukee. O. M. Rau. *Elec W* 68:220 Jl 29 '16
- Cost of coal and oil as fuel. P. Barker. *chart Power* 43:765-7 My 30 '16; Same cond. *Eng & Min J* 102:93-4 Jl 8 '16
- Cost of making steam for building heat. *Elec W* 67:495-7 F 26 '16
- Cost of operating steam heating systems. H. M. Hart. *Metal Work* 85:518-19 Ap 14 '16
- Relative costs of coal and of oil fuels. F. C. Fearing. *Power* 42:826-7 D 14 '15; Same. *Eng & Min J* 101:555-6 Mr 25 '16
- Simplified method of determining cost of coal per 1000 lb. of steam; chart. W. H. Schott. *Elec W* 66:754-6 O 2 '15; Same. *Power* 42:456-8 S 28 '15; Same. *Eng & Min J* 100:636-8 O 16 '15; Same. *Am Gas Light J* 104:5 Ja 3 '16

Steam, Exhaust. *See Exhaust steam***Steam, Superheated.** *See Superheated steam***Steam automobiles.** *See Automobiles, Steam***Steam boats.** *See Steamboats***Steam boilers.** *See Boilers***Steam cars.** *See Automobiles, Steam***Steam condensers.** *See Condensers (steam)***Steam cookers**

- Cooking by low-pressure steam; operation of steam kitchens one hundred and twenty-four years ago. *Metal Work* 85:227 F 11 '16
- Disposal of steam from jacketed kettles. *diags Metal Work* 85:259 F 18 '16

Steam engineering

- Draining of pipe lines. G. A. Weindel. *Power* 43:85 Ja 18 '16
- How much will we save? C. W. Hubbard. *Power* 43:248-9, 290-1 F 22-29 '16
- Lodge-room engineering. W. O. Rogers. *il Power* 43:403-5, 442-4 Mr 21-28 '16

See also Boiler plants; Evaporators; Indicator diagrams; Locomotives; Marine engineering; Steam engines; Steam plants; Steam turbines; Steamboats; Stokers; Mechanical; Superheated steam

Steam engineers

- Young engineer's outlook. F. B. Jacobs. *Power* 44:666 N 7 '16

See also Locomotive engineers

Steam engines

- Air-balanced hoisting engine. *il plan Power* 44:640-1 N 7 '16
- Auxiliary bearing on center crank steam engine. *il diag Power* 43:216 F 15 '16
- Comparison of engine performance. H. A. Everett. *Int Marine Eng* 21:390 Ag '16
- Compression from a mechanical point of view. F. R. Low. *diags Power* 44:674-9 N 14 '16
- Conditions governing operation of prime movers. A. A. Potter and S. L. Simmering. *Elec W* 66:1310-12 D 11 '15
- Corliss engine cured of racing. J. Morlock. *diag Power* 42:905 D 28 '15
- Discussion on the high pressure uniflow engine. C. H. Berry. *Sibley J* 30:231-2 Ap '16
- Early American engine. H. G. Boutell. *il Power* 44:600-1 O 24 '16
- Early uniflow engines. R. Christie. *Power* 43:121-2 Ja 25 '16
- Effect of early cutoff on wiring drawing. F. F. Nickel. *Power* 44:251 Ag 15 '16
- Effect of early cutoff on wiring drawing. T. T. Eyre. *diags Power* 44:11-13 Jl 4 '16
- Efficiencies of steam prime movers. F. O. Ellenwood. *Sibley J* 30:288-93 Je '16
- Efficiency. H. M. Hobart. *Gen Elec R* 19:279-81 Ap '16
- Engine-economy comparison. G. Sykes. *Power* 44:173 Ag 1 '16

Steam engines—Continued

- Flexibility in steam and gas engines. Sci Am S 82:117-18 Ag 19 '16
- High-pressure uniflow engine. R. Cramer. Sibley J 30:99-102, 140-2 D '15-Ja '16
- Higher steam pressures. R. Cramer. Am Soc M E J 38:28-30 Ja '16; Same. Power 44:843-6 D 14 '15; Discussion. Am Soc M E J 38:146-8 F '16
- Large uniflow engines for rolling mill. il diag Power 44:49-50 Jl 11 '16; Iron Tr R 59:130 Jl 20 '16; Met & Chem Eng 15:51-2 Jl 1 '16
- Origin of uniflow engine. W. E. Bullock. diags Am Soc M E J 38:562 Jl '16
- Passing of an old Corliss pumping engine. W. O. Rogers. il diag Power 44:456-7 S 26 '16
- Performances of uniflow engine and turbine compared. L. A. Quayle. Power 43:791-2 Je 6 '16
- Power equipment for steam plants. R. L. Streeter. il diags Eng M 52:33-44, 193-205 O-N '16
- Principle of una-flow steam engine. Iron Tr R 59:29 Jl 6 '16
- Proportioning cylinder ratio in compound engines. R. L. Wales. diag Power 43:732-3 My 23 '16
- S.-T. uniflow engine. H. A. Stringfellow. diags Power 42:834-6 D 14 '15
- Steam engine's extravagance. C. W. Crawford. Coal Age 10:351-2 Ag 26 '16
- Steam power for aeroplanes. J. G. Dudley. Sci Am S 81:350-1 My 27 '16
- Study of indicator diagrams from a compound Corliss. V. R. Gage. Power 44:196-7 Ag 8 '16
- Stumpf uniflow engine. E. N. Trump. Am Soc M E J 38:643-4 Ag '16
- Turbines vs. engines in units of small capacities. C. R. Waller; S. A. Moss. il Am Soc M E J 38:153-4 F '16
- Two causes for engine wrecks. H. E. Collins. diags Power 43:249-51 F 22 '16
- Una-flow steam engines for electric-plant operation. il Elec W 27:55-6 Ja 1 '16
- Uniflow engine. W. Trinks. Power 44:570-1 O 17 '16
- Uniflow engine for Doble automobile. Power 44:586 O 24 '16
- Uniflow engine for rod mill. O. J. Abell. il diag Iron Age 98:130-1 Jl 20 '16
- Using Corliss engines with fuel at 40c. per ton. S. W. Symons. il Coal Age 9:566 Ap 1 '16
- Very early Corliss engine. il Locomotive 31:76-7 Jl '16
- York poppet-valve return-flow and uniflow engines. il diags Power 44:420-2 S 19 '16
- See also* Automobiles; Steam; Boilers; Condensers (steam); Exhaust steam; Governors; Indicators; Injectors; Locomotives; Marine engines; Safety valves; Steam; Steam plants; Steam turbines; Steamboats; Superheated steam; Valves

Safety devices and measures

- Accident prevention means. W. Weaver. Power 43:25-6 Ja 4 '16
- Avoidable engine accidents. C. W. Crawford. Coal Age 8:844-5 N 20 '15
- Home-made engine stop. J. Simpson. diags Locomotive 31:47-8 Ap '16

Testing

- Buckeyemobile with a uniflow low-pressure cylinder. Power 43:662 My 9 '16
- Economy test of Lentz engine and boiler. G. C. Long. Power 44:180 Ag 1 '16
- Effects of shifting eccentrics. F. G. Baender. diags Power 44:67-8 Jl 11 '16
- Indicator test of triple expansion marine engines. A. C. De Lorme. Int Marine Eng 21:80-2 F '16
- Steam-engine acceptance tests. L. O. Day. Power 44:567-8 O 17 '16

Steam fitting. See Steam pipes**Steam flow**

- Capacity of steam pipes at different pressures. J. S. Otis. 16 tables Am Soc Heat & V E 21:347-81; Discussion. 331-8 '15
- Diagram for computing flow of steam in pipes. H. Harding. Power 43:836-8 Je 13 '16

- Flow of air and steam through orifices. H. B. Reynolds. diag Am Soc M E J 38:953-8 D '16
- Flow of steam in pipes. W. L. Durand. Power 43:324-5 Mr 7 '16
- Formula for the flow of steam in pipes. Power 44:246 Ag 15 '16
- Highest steam pressure recorded—velocity of flow of steam. H. A. Everett. Int Marine Eng 21:83-4 F '16
- Pipe-flow formulas compared. Power 43:805 Je 6 '16
- Sickles steam-flow tables. Power 44:436 S 19 '16
- Steam consumption of auxiliaries. H. A. Everett. diags Int Marine Eng 21:302 Je '16
- Steam-flow measurement; with discussion. E. G. Bailey. il diags Am Soc M E J 38:775-82 O '16; Same cond. Power 43:854-8 Je 13 '16
- Surface friction; experiments with steam and water in pipes; abstract. C. H. Lander. Am Soc M E J 38:505-6 Je '16
- Velocity of steam flowing through valves. E. A. Andrews, jr. Mach 22:849 Je '16
- Visits of inspector Brown. J. E. Terman. diag Power 44:616-18 O 31 '16

Steam gages

- Bracket for safety valve test gage. C. S. Taylor. diags Ry Mech Eng 90:39 Ja '16
- Smoke abatement at a Dayton power plant. C. C. Moore. il Power 44:127-8 Jl 25 '16

Steam hammers

- Making chain under steam hammers. F. G. Couburn. il Iron Tr R 58:49-52 Ja 6 '16

Steam heating

- Air binding in steam heating systems. H. L. Alt. diags Dom Eng 75:292-3, 328-9 Je 3-10 '16
- Air-line system of direct steam heating in Art institute, Chicago. il Dom Eng 77:141-2 N 4 '16
- Atmospheric, vacuo-vapor and vacuum heating systems. J. D. Hoffman. diags Power 43:88-9 Ja 18 '16
- Central station heating system at Tuskegee. il diags plans Metal Work 85:37-46 Ja 7 '16
- Cost of operating steam heating systems. H. M. Hart. Metal Work 85:518-19 Ap 14 '16
- Crude oil as fuel in low pressure heating systems. H. S. Haley. il diags Am Soc Heat & V E 21:410-24 '15; Same. Dom Eng 70:104-6, 139-41 Ja 23-30 '15
- Defective heating system. plan Dom Eng 73:302-3 D 4 '15
- Design and operation of fractional valves. J. A. Donnelly. diag Metal Work 86:214-15 Ag 18 '16; Same. Dom Eng 76:290-1 Ag 26 '16; Same cond. Power 44:366 S 5 '16
- Direct heating in store and lodge building. C. L. Hubbard. plans Metal Work 85:885-7 Je 30 '16
- Freakish steam heating plant. diags Dom Eng 75:100-1 Ap 22 '16
- Fuel losses outside of the boiler room. Textile World 51:1395-4 Mr 11 '16
- Garage business—buildings, equipment, methods. P. M. Heldt. diags plan Horseless Age 37:186-8 Mr 1 '16
- Heating a basement store. plans Metal Work 85:286, 319-20 F 25-Mr 3 '16
- Heating a Chicago office building. S. M. Bushnell. il diag Heat & Ven 13:21-6 F '16
- Heating and ventilating plant in Equitable building. W. H. Driscoll. diags Dom Eng 74:197-200, 229-30 F 12-19 '16
- Heating and ventilating systems in the Northwestern mutual life insurance building. Milwaukee, Wis. il plans Dom Eng 76:320-3 S 2 '16
- Heating by exhaust steam. Power 42:821 D 14 '15
- Heating with exhaust steam from steam hammers. I. N. Evans. Heat & Ven 13:41-2 N '16
- How to figure economy for cooling coils. W. J. Kline. Heat & Ven 13:46-7 O '16
- How to install a steam heating system in a garage. diag plan Dom Eng 77:9-10 O 7 '16
- Improving a heating system. W. H. Wakeman. diag Dom Eng 74:12 Ja 1 '16

Steam heating—Continued

Independent system of mechanical and gravity heating and ventilation designed for the new addition to the Harvard club, New York. diags plans Metal Work 86:37-41 J1 14 '16

Is customer furnished dry steam? Metal Work 85:318 Mr 3 '16

Large combination steam and forced hot water heating plant; New York state reformatory for women, Bedford Hills, N. Y. diags plans Heat & Ven 12:26-35 D '15

Lecture course on elements of heating. C: A. Fuller. il diag Metal Work 86:138-9 Ag 4 '16

Low pressure steam heating system in a photo play house. G: W. Loeber. plans Dom Eng 77:2-5 O 7 '16

Making the steam plant adequate for both power and heating. C: L. Hubbard. Eng M 51:716-23 Ag '16

Mechanical equipment in a New York school. F. G. McCann. il diag plan Metal Work 86: 135-7, 244-6, 461-2, 529-30, 585-6 Ag 4, 25, O 13, 27, N 10 '16

Modified heating systems. A. G. King. diags Dom Eng 74:162-4 F 5 '16

Modulation systems of heating. A. G. King. diags plan Dom Eng 73:294-6 D 4 '15

Motor worm-driven pumps. il Power 43:11-12 Ja 4 '16

New York chapter discusses vapor and vacuum heating systems. Heat & Ven 13:44-7 Ja '16
One-pipe overhead system connected to two-pipe vacuum district heating system. plans Dom Eng 74:136-7 Ja 29 '16

One type of modified heating apparatus; vapor heating systems. A. G. King. diags Dom Eng 74:2-4 Ja 1 '16

Passenger car steam heating plant at Atlantic City, N. J. C: A. Bingham. diags plans Heat & Ven 13:11-18 My '16

Piping arrangements for direct and indirect steam heating. C: L. Hubbard. diags Dom Eng 75:98-100, 128-9 Ap 22-29 '16

Plumbing and heating systems in new jail. il plan Metal Work 86:303 S 8 '16

Plumbing and heating systems in a new municipal bath house being built in Chicago. il plan Dom Eng 77:214-15 N 13 '16

Plumbing, heating and ventilating in the new Illinois state penitentiary being built at Lockport near Joliet. il diags Dom Eng 77: 177-8 N 11 '16

Proper ratio of economy coils for different kinds of heating systems. W. J. Kline. Power 43:930 Je 27 '16

Reduced pressure for steam heating. Power 43:453 Mr 28 '16

Remodeled steam plant in southern hotel. il Metal Work 85:655-6 My 19 '16

Research work for the operating engineer—heating problems. C: L. Hubbard. diags Power 44:443-6 S 26 '16

Returning condensation from steam systems. diags Metal Work 86:487-9 O 20 '16

Returning condensation to the boiler. A. G. King. diags Dom Eng 75:2-4 Ap 1 '16

Returning the water of condensation. W. H. Wakem. diags Dom Eng 74:360-1 Mr 18 '16

Schemes for heating small assembly halls. diags Metal Work 85:706-8 My 26 '16

Sheet metal features of steam heating plant. il Metal Work 86:621-2 N 17 '16

Space occupied by air in radiators. diag Metal Work 86:363-7, 439 S 22, O 6 '16

Standard details of heating and ventilating work. F. G. McCann. diags plans Metal Work 81:31-3, 125-6, 234-5, 302-3, 363-4, 421-4, 494, 511+, 606-7, 82:273-4, 460, 706-7, 83: 149-50, 281-2, 84:458, 551, 743, 797+, 85:375, 542, 644, 740, 86:42, 113 Ja 2, 16, F 6, 20, Mr 6, 20, Ap 3-10, My 1, S 4, O 2, N 27 '14, Ja 22, F 19, O 8, 29, D 10, 24 '15, Mr 17, Ap 21, My 12, Je 2, J1 14, 28 '16

Steam heating installation in a public garage; low pressure. G: W. Loeber. diags Dom Eng 77:138-41 N 4 '16

Steam heating system in a country hotel. G: W. Loeber. plans Dom Eng 77:250-3 N 25 '16

Steam requirements for power and heating. C: L. Hubbard. Eng M 51:553-61 J1 '16

Typical layout of Trane system of vapor heating. Heat & Ven 13:57 N '16

Unsatisfactory steam heating system. diags Dom Eng 74:107-8 Ja 22 '16

Use of heating coils. T. W. Reynolds. plans Heat & Ven 12:17-22 D '15

Vacuum heating kink. L. Roundy. diag Power 44:462 S 26 '16

Vacuum heating systems. C: L. Hubbard. diags Power 44:483-5 O 3 '16

Vapor heating. L. Howell. Dom Eng 77:227 N 18 '16

Vapor heating problem. Dom Eng 74:332 Mr 11 '16

Vapor heating system in Jefferson apartments, Valparaiso, Ind. il plans Metal Work 86:637-41 N 24 '16

Vapor heating systems and equipment. C: A. Fuller. diags Metal Work 86:67-8, 246-7 J1 21, Ag 25 '16

Vapor, vacuum and atmospheric heating. G: W. Loeber. plan Dom Eng 74:66-8, 101-2, 130-1 Ja 15-29 '16

Wall radiators installed around windows in heating of drill hall in La Grange, Ill., Masonic temple. il diags Dom Eng 77:70-1 O 21 '16

Water troubles in steam radiators. Heat & Ven 13:40-1 Ja '16

Where radiators siphon water from boiler. diag Dom Eng 75:230-1 My 20 '16

See also Boilers, Heating; Heating; Heating from central stations; Hot water heating; Radiators; Steam flow; Steam pipe coverings; Steam pipes

Noise

Simple remedy for noisy heating system. diag Heat & Ven 12:37-8 D '15

Simple remedy for noisy heating system. A. M. Feldman; I. N. Evans. diag Heat & Ven 13:42-4 Ap '16

Steam injectors. See Injectors

Steam jets

Shoveling ashes with a steam jet. B. L. Calkins. il Factory 17:32-5 J1 '16

Steam meters

Calibrating steam flow meters to show drafts required. R. I. Elkin. diag Elec W 68:766 O 14 '16

Steam-flow measurement; with discussion. E. G. Bailey. il diags Am Soc M E J 38:775-82 O '16; Same cond. Power 43:854-8 Je 13 '16

Steam flow meter applied to reciprocating steam engines. V: B. Phillips. Elec Ry J 48: 728-9 O 7 '16; Same cond. Elec W 68:866-7 O 28 '16

See also Boiler meters

Steam pipe coverings

Chart showing loss due to uncovered steam pipes. C: Brossmann. Power 43:491 Ap 4 '16; Same. Elec W 67:828 Ap 8 '16; Same. Eng & Contr 45:164 F 16 '16

Covering steam pipes. J. C. Hawkins. Power 43:50 Ja 11 '16

Heat insulating properties of commercial steam pipe coverings. L. B. McMillan. il diags Am Soc M E J 38:8-16 Ja '16; Abstract. Heat & Ven 13:28-35 Ja '16; Abstract. Power 43:469-74 Ap 4 '16; Discussion. Am Soc M E J 38: 140-2 F '16

How coverings prevent loss of heat. il Iron Tr R 59:1004-6 N 16 '16

How much will we save? C. W. Hubbard. Power 43:248-9 F 22 '16

Insulating underground piping. diags Metal Work 86:185 Ag 11 '16

Loss of heat from steam-heated surfaces; abstracts. J. E. Petavel. Am Soc M E J 38:98-9 Ja '16; Metal Work 85:284 F 25 '16

Passenger car steam heating plant at Atlantic City, N. J. C: A. Bingham. diags plans Heat & Ven 13:11-18 My '16

Value of pipe covering. Metal Work 85:712-13 My 26 '16

Steam pipes

Capacity of steam pipes at different pressures. J. S. Otis. 16 tables Am Soc Heat & V E 21:347-81; Discussion. 381-8 '15

Central station heating system at Tuskegee. il diags plans Metal Work 85:37-46 Ja 7 '16

Chart for determining the expansion of metals. W. F. Schaphorst. Ry Mech Eng 90:504 O '16; Same. Gas Age 38:84 J1 15 '16; Same. Eng & Min J 102:824 N 4 '16

Steam pipes—Continued

- Details of heating and ventilating work; pipe connections and valves at rear of steam boilers. F. G. McCann. *il plans Metal Work* 85:375 Mr 17 '16
- Draining of pipe lines. G. A. Weindel. *Power* 43:85 Ja 18 '16
- Drips on steam piping. *diags Heat & Ven* 13:34-5 N '16
- Exhaust steam and miter coils. *Metal Work* 84:835 D 31 '15
- Failure of a copper steam pipe on the Clan Urquhart. S. A. Houghton and P. Mc Neil. *diag Engineer* 122:88-9 JI 28 '16
- Flow of steam in pipes. A. G. King. *Dom Eng* 75:160-1 My 6 '16
- Flow of steam in pipes. W. L. Durand. *Power* 43:324-5 Mr 7 '16
- Heat loss from underground steam mains measured by melted snow. T. W. Reynolds. *Elec W* 67:497-8 F 26 '16
- Heating and ventilating plant in Equitable building. W. H. Driscoll. *diags Dom Eng* 74:197-200, 229-30 F 12-19 '16
- Heating system in the new Cicero-Stickney high school at Cicero, Ill. *il plan Dom Eng* 76:354-6 S 9 '16
- Installation of steam radiators and piping. *diags Metal Work* 85:510-11 Ap 14 '16
- Novel steam-pipe arrangement. C. M. Crewe. *diags Power* 43:521 Ap 11 '16
- Pipe-fitting suggestions. *Power* 42:895-6; 43:223, 263 D 28 '15, F 15-22 '16
- Pipe-line dead ends. *Power* 44:626 O 31 '16
- Pipe sizes for high pressure steam. *Metal Work* 85:320-1 Mr 3 '16
- Pointers for steam fitters. *diag Metal Work* 84:808; 85:103 D 24 '15, Ja 14 '16
- Returning condensation from steam systems. *diags Metal Work* 86:487-9 O 20 '16
- Steam piping protects Erie switches from snow and ice. L. A. Francisco. *il Eng Rec* 73:349 Mr 11 '16
- Steam risers larger at top. J. G. Broman. *Power* 43:334 Mr 7 '16
- Use of siphon traps in steam systems. *diags Metal Work* 85:582-3 Ap 28 '16
- Welding a 4,000-ft. steam main. *il Power* 43:359-60 Mr 14 '16
- See also* Heating from central stations; Pipe fittings; Pipe joints; Piping (power plants); Steam flow; Steam heating; Steam pipe coverings; Steam traps
- Steam plants**
- Additions to Rhode Island power plant. *il diag plan Elec Ry J* 47:300-3 F 12 '16
- Analyzing a marine steam plant. E. N. Percy. *Int Marine Eng* 21:209-13, 254-5, 298-300, 386-8 Ap-Je, Ag '16
- Calgary's municipal power plant. A. G. Christie. *il diags Power* 43:352-7 Mr 14 '16
- Carondelet power plant. T. Wilson. *il diag plan Power* 43:646-50 My 9 '16
- Changes in steam station of Rhode Island company. *il diag plan Elec W* 67:365-7 F 12 '16
- Cincinnati hospital plant. T. Wilson. *il diags plan Power* 43:826-31 Je 13 '16
- Conditions under which Oregon company burns wood. *il Elec W* 68:170-1 JI 22 '16
- Construction and operation of a small steam plant. G. A. Collins. *il Elec W* 67:263-5 Ja 29 '16
- Conway building power plant, Chicago. T. Wilson. *il plans Power* 43:66-9, 109-13 Ja 18-25 '16
- Data and discussion on efficiency in public utility power plants. C. Brossmann. *il diags Eng & Contr* 45:162-5 F 16 '16; Same cond. *Power* 43:490-2 Ap 4 '16; Abstract. *Elec W* 67:828 Ap 8 '16
- Essex power station, New Jersey. *il diags Power* 44:738-44 N 28 '16
- Extension of central station steam service in New York. *diags maps Heat & Ven* 13:48-52 JI '16
- Extension to West Penn co.'s Connellsville power plant. W. O. Rogers. *il diags plan Power* 44:402-6 S 19 '16
- Factors governing the efficiency of steam plants. C. E. Bowron. *Coal Age* 10:539-41 S 30 '16
- Federal power development at Williston. A. P. Connor. *il diags plan Power* 43:240-4 F 22 '16

- Government regulation of power-plant practice. F. J. McMahon. *Power* 44:700 N 14 '16
- Graphic methods of analysis in the design and operation of steam power plants. R. J. S. Pigott. *Am Soc M E J* 38:947-53 D '16
- Heating and ventilating plant in Equitable building. W. H. Driscoll. *diags Dom Eng* 74:197-200 F 12 '16
- High coal economy at Conners Creek station of Detroit company. *Elec W* 67:152 Ja 15 '16
- High-pressure steam station in Illinois. *Elec Ry J* 47:206 Ja 29 '16
- High turbine economy at poor load factors at Dowagiac, Mich., and Hoopeston, Ill. *il Elec W* 68:66-8 JI 8 '16
- Lethbridge municipal power plant. A. G. Christie. *il plan Power* 43:462-6 Ap 4 '16
- Lucerne mines power plant. W. O. Rogers. *il Power* 44:42-5 JI 11 '16
- Making the steam plant adequate for both power and heating. C. L. Hubbard. *Eng M* 51:716-23 Ag '16
- Manchester to Bury electrification. *il plans Engineer* 121:52-5, 75-8 Ja 21-28 '16
- Modern power and heating plant at the University of Michigan. P. C. Satterthwaite. *il Dom Eng* 76:52-5 JI 8 '16
- Modernizing Narragansett co.'s South street station. C. H. Bromley. *il plan Power* 42:884-90 D 28 '15
- Municipal power plant at Medicine Hat, Can. A. G. Christie. *il plans Power* 43:138-42 F 1 '16
- Municipal power plant operated by Saskatoon, Canada. A. G. Christie. *il plan Power* 43:606-9 My 2 '16
- New Fremont, Ohio, power plant. W. O. Rogers. *il diags Power* 44:576-82 O 24 '16
- Operating conditions at Newark, Ohio, power plant. W. O. Rogers. *il Power* 44:80-3 JI 18 '16
- Philadelphia electric company power station A-2 has four 12-foot steel stacks 165 feet high. *il diags Eng Rec* 73:240-3 F 19 '16
- Pile-and-mat foundation for power house in marsh of Newark bay. *il plans Eng N* 74:1113-15 D 9 '15
- Power cost in paper mill. T. Wilson. *plan Power* 44:190-2 Ag 8 '16
- Power equipment for steam plants. R. L. Streeter. *il diags Eng M* 51:879-902; 52:33-44, 193-205, 355-71 S-D '16
- Power-plant efficiency. V. J. Azbe. *Am Soc M E J* 38:958-64 D '16
- Power plant of the Edmonton Portland cement co., Edmonton, Can. A. G. Christie. *il diag plans Power* 43:100-3 Ja 25 '16
- Power plant to generate steam at 350 lb. pressure. *Power* 43:136 Ja 25 '16
- Record system for office-building plant. *Power* 43:15-17 Ja 4 '16
- Regina, Can., municipal power plant. A. G. Christie. *il plans Power* 42:776-81 D 7 '15
- Rejuvenation of the power plant of United illuminating co., New Haven, Conn. J. Breslav. *il plan Power* 43:34-6 Ja 11 '16
- Remington arms and ammunition company's power plant. W. O. Rogers. *il diags plan Power* 43:310-15 Mr 7 '16
- Remington arms power plant at Bridgeport. *il diags Iron Age* 97:1064-7, 1120-2 My 4 '16
- Report of station operating committee of National district heating association. *Power* 43:859-60, 894-5, 928-9; 44:30-2 Je 27-JI 4 '16
- Rochester (Minnesota) state hospital plant. T. Wilson. *il plans Power* 43:170-4 F 8 '16
- Standard oil boiler plants at Whiting, Ind. T. Wilson. *il diags Power* 43:499-504 Ap 11 '16
- Status of water-power development. H. W. Buck. *Elec W* 67:148-51 Ja 15 '16; Same cond. *Sci Am S* 82:166-7 S 9 '16
- Steam requirements for power and heating. C. L. Hubbard. *Eng M* 51:553-61 JI '16
- Steel framing of a large power station, Newark, N. J. *il diags Eng N* 74:1260-4 D 30 '15
- Temperature variations in the steam plant; thermometer indications from furnace to condenser. *chart Sci Am S* 77:284 My 2 '14; Same (chart). *Eng & Min J* 102:20 JI 1 '16
- Temperature variations in the turbine steam plant. *chart (supp) Power* 43:395-6 Mr 21 '16; Same (chart). *Eng & Min J* 102:21 JI 1 '16

Steam plants—Continued

- Unit no. 3 at Northwest station of the Commonwealth Edison co., Chicago, T: Wilson. il diags Power 43:866-S Je 20 '16; Abstract (Chicago station has 45,000-hp. steam turbine). Eng N 76:52-3 Jl 13 '16
- University of Toronto central heating and power plant. L. M. Arkley. diag plan Power 44:516-17 O 10 '16
- West Penn traction co. enlarging important steam station under load. il plans map Elec W 67:196-9 Ja 22 '16
- West Penn traction co.'s Wheeling power plant. W. E. Moore. il plans Power 42:812-18 D 14 '15

See also Blowoff tanks; Boiler plants; Boilers; Draft; Electric plants; Feed water heaters; Piping (power plants); Power plants; Steam; Steam engineering; Steam engines; Steam turbines

Costs

- Construction costs for a 10,000-kw. steam plant, Quincy Point, Mass. Elec W 66:1312-14 D 11 '15
- Co-relationship of factors affecting the cost of power. R. Trautschold. charts Eng M 50: 860-8 Mr '16
- Operating and cost data for electric railway power stations. Elec W 68:865-6 O 28 '16
- Operating costs in combined power and heating plants. C. L. Hubbard. plans Eng M 51: 869-78 S '16
- Philip Carey boiler plant. T: Wilson. il diag Power 44:232-3 Ag 15 '16

Safety devices and measures

- Safety first for power plants. H. B. McDermid. Power 43:373-4 Mr 14 '16

Testing

- New York Hall of records test. A. T. Rogers. Power 43:597-8 Ap 25 '16
- New York Hall of records test. R. P. Bolton. Power 43:778 My 30 '16
- Report upon efficiency tests of a 30,000 kw. cross-compound steam turbine. H. G. Stott and W. S. Finlay, jr. il Am Soc M E J 38:457-64 Je '16; Same. Power 43:746-8 My 23 '16; Abstract. Elec Ry J 47:903 My 13 '16; Abstract. Elec W 67:1088-90 My 13 '16; Discussion. Am Soc M E J 38:464-70 Je '16; Power 43:748-52 My 23 '16
- Results from New York Hall of records test. Power 43:361-2 Mr 14 '16
- Union Central building, Cincinnati, O., power-plant tests. C. B. Garrison. il Power 43:206-8 F 15 '16

Steam power. See Power cost; Steam engines

Steam power plants. See Steam plants

Steam separators

- Diagram of a steam separator used in a steam turbine plant. Am Soc M E J 38:465 Je '16
- Steam separator. Power 44:627-8 O 31 '16
- Welder on steam receiver separators. il Elec W 68:682 S 30 '16; Power 44:682 N 14 '16

Steam ships. See Steamboats

Steam shovels

- Digging end of power shovels. Eng N 76:172 Jl 27 '16
- Giant revolving shovel used at gravel plant. il Eng Rec 74:345 S 16 '16
- Light steam shovel with scraper action. il Eng N 75:805-6 Ap 27 '16
- New method of mining coal; open mining made possible by giant shovels. J: Timmons. il Sci Am S 81:12 Ja 1 '16
- Portable hoppers on street, steam shovel underground. il Eng Rec 74:149-50 Jl 29 '16
- Power shovels for trenching. diag Eng N 75: 995 My 25 '16
- Rail clamp for steam shovel. L. D. Davenport. diags Eng & Min J 102:138 Jl 15 '16; Same. Coal Age 10:147 Jl 22 '16
- Roller makes dipper-latch on steam shovel work easily. diag Eng Rec 73:261 F 19 '16
- Shallow excavation by steam shovel. il Munic Eng 50:116-17 Mr '16
- Small steam shovel work in road grading, Contra Costa county, California; with cost data. J. E. Bonersmith. Eng & Contr 46: 59-60 Jl 19 '16

- Steam-shovel coal stripping in the Danville district. il Coal Age 9:448-52 Mr 11 '16
- Steam shovel records on a large cut for track depression. il Eng & Contr 45:592 Je 28 '16
- Steam shovel requires only 8-ft. clearance. il Elec Ry J 48:195 Jl 29 '16
- Steam shovels and locomotive cranes. L. K. Sillicox. Ry Age 60:914-15 Ap 21 '16
- Stripping the overburden in openpit mining. L. O. Kellogg. il Eng M 50:896-909 Mr '16
- Trench excavation with steam shovel. il Eng & Contr 46:348 O 13 '16
- Two steam shovels in one cut. il Eng N 74: 1278-9 D 30 '15

Safety devices and measures

- Steam-shovel safety suggestions. Eng & Min J 102:425-6 S 2 '16

Steam traps

- Advantages of return steam traps. Metal Work 86:463 O 13 '16
- Baldwin steam trap. il diag Engineer 122:355 O 20 '16
- Connecting and disconnecting a steam trap. W. H. Wakeman. diags Dom Eng 74:231 F 19 '16
- Design of steam trap that handles high rates of discharge. diag Elec W 67:434 F 19 '16
- Draining steam lines. H. G. Schuler. il Power 44:65 Jl 11 '16; Same. Coal Age 10:144 Jl 22 '16
- Gages for steam traps. W. S. Griscom. Power 44:177-8 Ag 1 '16
- Information about steam traps. W. H. Wakeman. diags Dom Eng 75:66-8 Ap 15 '16
- J-M radiator trap. diag Heat & Ven 13:53 Ag '16
- Kinds and uses of steam traps. diags Power 44:51-3 Jl 11 '16
- Lindstrom constant flow steam trap. il Heat & Ven 13:59-60 Jl '16
- Location of steam traps. W. H. Wakeman. diags Dom Eng 73:361-2 D 18 '15
- Modified heating systems. A. G. King. diags Dom Eng 74:162-4 F 5 '16
- Operation of return steam traps. W. H. Wakeman. diags Dom Eng 75:262-4 My 27 '16
- Penco thermo gauge. il Textile World 51:2265 My 6 '16
- Revolving-bucket steam trap. il Power 43:184 F 8 '16
- Rolling ball steam trap. il Heat & Ven 12:47-50 D '15
- Simple steam trap that handles high rates of discharge. il Am Gas Light J 104:189 Mr 20 '16
- Steam traps and their uses. A. J. Purcell. Dom Eng 75:395-6 Je 24 '16
- Steam traps and their uses in textile mills. il diags Textile World 51:4739 N 4 '16
- Stickle balanced-valve steam trap. il Power 43:508 Ap 11 '16
- Swartwout hydromatic trap. il Heat & Ven 13:53 Ag '16
- Use of siphon traps in steam systems. diags Metal Work 85:582-3 Ap 28 '16

See also Steam pipes

Steam turbines

- Axial two-way exhaust for Ljungstrom turbine. diag Power 44:347 S 5 '16
- Calculation of turbine efficiency by use of Mollier diagram. H. A. Cozzens, jr. Elec W 67:93-4 Ja 8 '16
- Conditions governing operation of prime movers. A. A. Potter and S. L. Simmering. Elec W 66:1310-12 D 11 '15
- Diesel engines versus steam turbines for mine power plants. H. Haas. il Am Inst Min E Bul 115:1171-83 Jl '16; Excerpts. Met & Chem Eng 15:156-7 Ag 1 '16; Abstract. Am Soc M E J 38:674-5 Ag '16; Abstract. Iron Age 98:291 Ag 10 '16; Excerpts. Engineer 122:324 O 13 '16; Discussion. Am Inst Min E Bul 120:2213-22 D '16
- Distributing turbine loads for best water rate. W. A. Hirt. Elec W 68:1009 N 18 '16
- Dredge (Columbia) with geared turbine-driven pumps. il Int Marine Eng 21:244-5 My '16
- Economy of small non-condensing turbines. D. O. Tylee. Elec W 68:382 Ag 19 '16

Steam turbines—Continued

- Efficiencies of steam prime movers. F. O. Ellenwood. Sibley J 30:288-93 Je '16
- English specifications for alloys for high-speed super-heated steam turbine blading. W. B. Parker. Metal Ind n s 14:68-71, 114-16 F-Mr '16
- Exhaust steam turbine. J. Breslav. il diags Power 43:801-5 Je 6 '16
- Exhaust steam turbine. V. Bonn. Power 44:176-7 Ag 1 '16
- Fitting the turbine to the job. W. J. A. London. Power 43:200-1 F 8 '16
- High turbine economy at poor load factors. il Elec W 68:66-8 Jl 8 '16
- Installation features at Alexandria (Va.) steam station. F. R. Weller. il Elec W 67:1105-6 My 13 '16
- Jones-Patchell turbine. il diag Power 43:728 My 23 '16
- Large turbine for Providence. il diag Power 43:544-5 Ap 18 '16
- Largest bleeder turbine. E. Mayl. il Power 44:130 Jl 25 '16
- Mixed-pressure turbine in the Christian Moerlein brewery. J. Arff. il Power 43:880-1 Je 20 '16
- N. E. L. A. report of committee on prime movers. diag Elec Ry J 47:998-9 My 27 '16; Elec W 67:1221-2 My 27 '16
- Operating bleeder turbines. J. A. McGillivay. Power 43:447 Mr 28 '16
- Operating bleeder turbines. J. Breslav; W. O. Perkins. diag Power 43:705-6 My 16 '16
- Operation of low-pressure steam turbines. W. J. Livingston. Elec W 67:1308-9 Je 3 '16
- Overhauling turbine unit and its auxiliaries. Elec W 68:961 N 11 '16
- Performances of uniflow engine and turbine compared. L. A. Quayle. Power 43:791-2 Je 6 '16
- Power equipment for steam plants. R. L. Streeter. il diags Eng M 51:879-902 S '16
- Rating and guarantee of small centrifugal machinery. C. M. Reed. Power 44:531-3 O 10 '16
- Rating and guarantee of small centrifugal machinery. W. J. A. London. Power 44:762-3 N 28 '16
- Report of station operating committee of National district heating association; extraction, or bleeder-type, turbines. Power 43:928-9 Je 27 '16
- Single and multi-stage steam turbines. diag Elec W 68:1018-19 N 18 '16
- Small geared turbine-driven generating units. il Power 43:210-11 F 15 '16
- Small turbine for direct connection or gearing; type L. R. H. Rice. il diag Gen Elec R 19:564-6 Je '16
- Steam turbine blade fastenings; abstract. J. A. Capstaff. diags Am Soc M E J 38:431-2 My '16
- Steam turbine blading. Power 43:367 Mr 14 '16
- Steam-turbine capacities. Power 43:445-6 Mr 28 '16
- Steam turbines; an explanation of their principles and operation. C. H. Bromley. il diags Sci Am S 81:20-1 Ja 8 '16
- Turbine blading. Sci Am S 81:213 Ap 1 '16
- Turbines vs. engines in units of small capacities. C. R. Waller; S. A. Moss. il Am Soc M F J 38:153-4 F '16
- Turbines vs. engines in units of small capacities. P. A. Bancel. diags Am Soc M E J 38:306-7 Ap '16
- 1250 kilowatt d. c. turbo-generator. il diags Engineer 120:626, 631-2 D 31 '15
- Vibration in steam turbines. H. A. Fisher. Power 44:489-90 O 3 '16

Explosions

- Explosion of steam turbine. il Locomotive 30:194-5 Jl '15

Testing

- Correcting turbine test results. H. A. Cozens. jr. Elec W 67:1362 Je 10 '16
- Report upon efficiency tests of a 30,000 kw. cross-compound steam turbine. H. G. Stott and W. S. Finlay. jr. il Am Soc M E J 38:457-64 Je '16; Same. Power 43:746-8 My 23 '16; Abstract. Elec Ry J 47:903 My 13 '16; Abstract. Elec W 67:1088-90 My 13 '16; Discussion. Am Soc M E J 38:464-70, 721-2 Je, S '16; Power 43:748-52 My 23 '16

Steam turbines, Marine

- Application of small steam turbines for auxiliary purposes on board ship; abstracts. W. J. A. London and F. D. Herbert. Int Marine Eng 20:547-8 D '15; Power 43:60-1 Ja 11 '16
- Geared turbine and the turbo-electric systems of marine propulsion. J. H. Macalpine. diag Int Marine Eng 21:4-8 Ja '16
- Steam turbine on board ship. il Int Marine Eng 21:339-40, 346 Jl '16
- United States battleship Nevada. il plan Int Marine Eng 21:155-9 Mr '16
- United States navy department adopts geared turbines for destroyers. Elec R & W Elec'n 69:410 S 2 '16
- Westinghouse geared turbine machinery for single screw tank steamer. il diags plans Int Marine Eng 21:366-77 Ag '16
- See also Ship propulsion; Steamboats

Steam valves. See Valves**Steamboat lines**

- Economics of a steamship line. E. N. Percy. Int Marine Eng 21:398-9 S '16
- Shippers favor operation of water lines by railroads. Ry Age 61:742 O 27 '16

Claims

- Reducing claims on a boat line. J. H. Torney. Ry Age 60:1545-6 Je 23 '16

Steamboats

- Comparing conditions of steamship service. A. R. Liddell. Int Marine Eng 21:225-7 My '16
- Dry steam in Scotch boilers—remarkable performance of the steamship Bristol. diags Int Marine Eng 21:205-7 Ap '16
- Duilio; how Italy promotes her South American trade. il Sci Am S 82:24-5 Jl 8 '16
- Harbor survey boat General C. E. Sears. il diags plans Int Marine Eng 21:289-91 Je '16
- Launching of S. S. Texas. il Int Marine Eng 21:90 F '16
- Munson steamship Munamar. il plans Int Marine Eng 21:186-7 Ap '16
- New Dutch passenger and mail steamship. F. C. Coleman. il Int Marine Eng 21:181-3 Ap '16
- New quadruple screw steamship Lafayette. il Int Marine Eng 20:532-5 D '15
- Panama colliers Ulysses and Achilles. il diags plans Int Marine Eng 21:283-8 Je '16
- United States coast survey steamer Surveyor. plans Eng N 76:812-13 O 26 '16
- See also Boilers, Marine; Ferryboats; Freight handling; Freight ships; Marine engines; Propellers; Ship propulsion; Shipbuilding; Shipping; Ships; Steamboat lines; Tank ships; Towboats; Warships

Steamers. See Steamboats**Steamship terminals. See Terminals****Steamships. See Steamboats****Steel**

- Action of gases on iron and steel. Sci Am S 81:160 Mr 4 '16
- Correlations of the magnetic and mechanical properties of steel. Sci Am S 81:307 My 13 '16
- Corrosion of metals; symposium at meeting of the Faraday society, Dec. 8, 1915. Engineer 120:571-3 D 17 '15
- Corrosion of steel and cast iron compared. R. C. McWane and H. Y. Carson. il Foundry 43:467-9 N '15; Same. Iron Tr 58:141-3 Ja 13 '16
- Grain growth phenomena in metals. Z. Jeffries. Am Inst Min E Bul 119:2069-71 N '16
- How steel bars are rolled for use in the manufacture of shrapnel shells. W. S. Standiford. il Sci Am 115:245 S 9 '16
- How to select industrial steels. A. E. Paige. Eng M 51:217-25 My '16
- Influence of carbon and manganese upon the corrosion of iron and steel. R. Hadfield and J. N. Friend. Engineer 121:528-30 Je 23 '16; Excerpts. Iron Age 97:1258 My 25 '16; Excerpt. Met & Chem Eng 15:45-6 Jl 1 '16
- Magnetic laws for steel and other materials. J. D. Ball. J Fr Inst 181:459-504 Ap '16; Same. Gen Elec R 19:369-90 My '16
- Rail failures ascribed to poor quality of steel. W. C. Cushing. Eng Rec 73:475 Ap 8 '16
- Relative corrodibilities of iron and steel. J. N. Friend. Engineer 120:559-60 D 10 '15

Steel—Continued

Rusting of iron and steel; abstract. J. Scott. *il Am Soc M E J* 38:184-5 F '16
 Steel conductor rails; British steel conductor rail practice and standard methods of testing; abstracts. C. H. Ridsdale. *diags Elec W* 68:187-8 J1 22 '16; *Iron Age* 98:650-1 S 21 '16

Steel in the light of modern research. *Sci Am S* 80:373 D 11 '15

Swedish steel—the cause of its excellence. Horseless Age 36:419 N 1 '15

Theory of the corrosion of steel. L. Aitchison. *il Met & Chem Eng* 15:88-92 J1 15 '16

Weight of steel in pounds from 1 to 1,000 cubic inches; tabulation. Foundry 44:230a Je '16

See also Annealing; Armor plate; Cars, Steel; Case hardening; Concrete, Reinforced; Corrosion and anti-corrosives; Electrolytic corrosion; Foundry practice; Iron; Manganesee steel; Metallography; Molybdenum steel; Nickel steel; Open hearth process; Railroad ties, Steel; Rails; Semi-steel; Silicon steel; Springs (mechanism); Steel, Heat treatment of; Steel, Structural; Steel castings; Steel construction; Steel industry; Steel ingots; Steel metallurgy; Steel works; Tool steel; Tubes; Tungsten steel; Vanadium steel; Wire rope

Analysis

Accurate end-point in the volumetric determination of sulfur in steel. H. Zschieglener. *J Ind & Eng Chem* 8:324 Ap '16

Analyzed irons and steels—methods of analysis. *U S Bur Stand Circ* 14:1-17 '16

Cause and effect of ghost lines in large steel forgings; abstracts. J. O. Arnold. *Engineer* 120:498 N 26 '15; *Am Soc M E J* 38:88 Ja '16; *Iron Age* 97:326 F 3 '16; *Sci Am S* 81:239-40 Ap 8 '16; *Iron Tr R* 59:1103-6 N 30 '16

Commercial production of sound ingots. W. D. Bradford. *il diags Iron Age* 96:1464-6 D 23 '15

Determination of carbon in steels and irons by direct combustion in oxygen at high temperatures. J. R. Cain and H. E. Cleaves. *diags U S Bur Stand Tech Pa* 69:1-10 '16; Same. *J Ind & Eng Chem* 8:321-4 Ap '16

Determination of chromium and vanadium in steel by electrometric titration. G. L. Kelley and J. B. Conant. *J Ind & Eng Chem* 8:719-23 Ag '16

Determination of gases in steel. *Iron Age* 97:720-1 Mr 23 '16

Determining carbon in steel by combustion. J. W. Barbey. *il Iron Age* 98:1053 N 9 '16

German shells and the influence of certain elements on the physical properties of steel. J. E. Stead. *il Engineer* 121:43-4 Ja 14 '16; Same cond. *Iron Age* 97:536-7 Mr 2 '16

Inclusions of alumina in steel. A. Sauveur. *il Iron Tr R* 59:179-80 J1 27 '16; Same. *Met & Chem Eng* 15:149-51 Ag 1 '16

Method for distinguishing sulphides from oxides in the metallography of steel. G. F. Comstock. *il Am Inst Min E Bul* 120:2103-10 D '16

Oxygen content of iron and steel. J. A. Pickard. *Iron Age* 98:184-6 J1 27 '16

Presence of alumina in steel. G. F. Comstock. *il Iron Tr R* 59:563-7 S 21 '16; Same cond. *Iron Age* 98:582-4 S 14 '16

Use of diphenyl glyoxime as an indicator in the volumetric determination of nickel by Frevet's method. G. L. Kelley and J. B. Conant. *J Ind & Eng Chem* 8:804-7 S '16

Case hardening

See Case hardening

Failures

Steel fatigue at low stress due to flaws. J. W. Cunningham. *Eng N* 75:133 Ja 20 '16

Specifications

American society for testing materials committee report on steel. *Iron Age* 98:24-6 J1 6 '16; *Iron Tr R* 59:33-4 J1 6 '16; *Ry Age* 61:15 J1 7 '16

British standardize automobile steels. A. E. Berriman. *Automobile* 34:1038-9 Je 8 '16

French specifications for shell steel. *Iron Age* 98:450-1 Ag 31 '16

Metallography of steel for United States naval ordnance; requirements of the Bureau of ordnance. H. E. Cook. *il Am Inst Min E Bul* 110:375-400 F '16; Same. *Iron Tr R* 58:379-88 F 17 '16

One thousand steel specifications reviewed. R. Fleming. *Eng Rec* 73:838-40 Je 24 '16

Proposed eighth report of iron and steel division of S. A. E. *Automobile* 34:22-3+ Ja 6 '16

Steel casting specifications; report of the committee of the American foundrymen's association. *Iron Age* 98:705 S 28 '16

Testing

Alternating stress endurance of steel. B. P. Haigh. *il diags Iron Age* 97:1144-7 My 11 '16

Correlation of the magnetic and mechanical properties of steel. C. W. Burrows. *il Ry R* 58:568-71 Ap 22 '16; Abstract. *Iron Age* 97:795-6 Mr 30 '16; Excerpt. *Eng M* 51:601 J1 '16

Corrosion of high chromium steels. R. Hadfield. *Iron Age* 97:202-3 Ja 20 '16

Crystallization in cold-worked steel. R. H. Sherry. *il Iron Age* 98:76-9 J1 13 '16

Drill steel and its treatment. E. M. Weston. *diags Eng & Min J* 100:1003-5 D 18 '15

Effect of carbon on the physical properties of heat-treated carbon steel. J. H. Nead. *il Am Inst Min E Bul* 108:2341-57 D '15; Discussion. 113:943-6 My '16

Effect of cold-twisting on the properties of mild-steel bars; abstract. P. B. Whitney and G. K. Dohner. *Am Soc M E J* 38:1034-5 D '16

Effect of nitrogen in steel. B. Strauss. *il Iron Age* 97:432-3 F 17 '16

Effect of sulphur in rivet steel. J. S. Unger. *il Power* 44:144-6 J1 25 '16

Effect of sulphur in steel. W. Hirst. *Power* 44:287 Ag 22 '16

Effect of sulphur on low-carbon steel. C. R. Hayward. *diag Am Inst Min E Bul* 118:1841-50 O '16; Same cond. *Iron Age* 98:756-8 O 5 '16; Same cond. *Iron Tr R* 59:735-7 O 12 '16

Efficiency of tool steels. J. O. Arnold. *Iron Age* 97:1207 My 18 '16; Same. *Iron Tr R* 59:21 J1 6 '16; Same. *Sci Am S* 82:71 J1 29 '16; Same, with discussion. *Engineer* 121:397-8 My 12 '16

Finding flaws in steel by electricity. *Iron Tr R* 57:1089 D 2 '15; Same. *Foundry* 44:40 Ja '16

Grips for plain-shouldered tension specimens. *il diags Eng N* 75:277-8 F 10 '16

High and low carbon rivets. Y. Taji. *Iron Age* 97:264 Ja 27 '16

High and low sulphur in basic steel. J. S. Unger. *il Iron Age* 97:146-50 Ja 13 '16; Same cond. Horseless Age 37:69-70 Ja 15 '16; Same cond. *Eng N* 75:365-5 F 24 '16; Same cond. *Eng & Min J* 101:595-7 Ap 1 '16

High sulphur in steel. M. H. Schmidt. *Iron Age* 97:383 F 10 '16; Same. *Iron Tr R* 58:646 Mr 23 '16

How much sulphur in steel? *Sci Am S* 81:68 Ja 29 '16

How to select industrial steels. A. E. Paige. *Eng M* 51:223-5 My '16

Identifying high-speed steel scrap. C. M. Bigger. *Iron Age* 96:1422-3 D 16 '15

Influence of speed on endurance tests. W. C. Popplewell. *Engineer* 122:339-40 O 20 '16

Influence of temperature and mechanical working in hydraulic forging on the physical properties of wrought iron and steel; abstract. O. Fuchs. *Am Soc M E J* 38:89-90 Ja '16

Influence of thickness on tensile tests. G. B. Waterhouse. *Iron Age* 97:896-8 Ap 13 '16

Initial structure of steel castings. E. F. Cone. *il Iron Age* 96:1294-7 D 2 '15

Large columns of carbon and alloy steels fail near yield points of material. J. H. Griffith and J. G. Bragg. *il diags Eng Rec* 74:19-21 J1 1 '16

Magnetic testing of bars of straight or curved form. A. Campbell and D. W. Dye. *diags Inst E E J* 54:35-45 D 1 '15; Abstract. *Elec W* 67:553-4 Mr 4 '16

Nick and break steel rail test. R. W. Hunt and C. W. Gennet, jr. *il diags Iron Tr R* 58:709-18 Mr 30 '16; Same cond. *Iron Age* 97:722-5 Mr 23 '16; Same cond. *Ry R* 58:452-6 Mr 25 '16

Steel—Testing—Continued

- Novel steel truss section. *il* Iron Tr R 58:655-6 Mr 23 '16
- Oil and water quenching of axles. C. D. Young. *il* diag Iron Tr R 58:1424-6 Je 29 '16; Same cond. Iron Age 97:1546-7 Je 29 '16; Same cond. Ry Age 61:17-18 Jl 7 '16; Same cond. Ry Mech Eng 90:398-9 Ag '16; Abstract. Eng N 76:88 Jl 13 '16
- Progress report of special committee of American society of civil engineers on steel columns and struts. Eng & Contr 45:86-9 Ja 26 '16
- Proportional limit identical with elastic limit; discussion at annual meeting of American society for testing materials. Eng N 76:89 Jl 13 '16; Iron Age 98:65 Jl 6 '16; Eng Rec 74: 78-9 Jl 15 '16
- Research on the corrosion resistance of copper steel. D. M. Buck and J. O. Handy. *il* J Ind & Eng Chem 8:209-16 Mr '16; Same cond. Iron Tr R 58:533-41 Mr 9 '16; Same cond. Iron Age 97:596-600 Mr 9 '16; Same cond. Metal Work 85:376-9 Mr 17 '16; Abstract. Am Soc M E J 38:346 Ap '16
- Segregated streaks in steel rails. G. F. Comstock. *il* Iron Tr R 59:941-6 N 9 '16; Same cond. Ry R 59:732-4 N 25 '16
- Silicon steel for bridges. Eng N 75:1105 Je 8 '16
- Steel castings and physical properties. E. F. Cone. *il* Iron Age 97:1310-13 Je 1 '16
- Steel columns of thick material relatively weak. Eng Rec 73:81-2 Ja 15 '16
- Strength and stiffness of steel under biaxial loading. A. J. Becker. *bibliog il* diags Ill U Eng Exp Sta Bul 85:1-65 '16
- Sulphur content in steel. R. E. Newcomb. Power 44:393 S 12 '16
- Testing hardness of rifle parts. A. F. Shore. *il* Mach 22:857-8 Je '16
- Testing malleable and cast steel. A. Harley. *il* Iron Tr R 59:121-7 Jl 20 '16; Abstract. Am Soc M E J 38:763 S '16
- Testing of dredge bucket pins. R. A. Young. *il* Eng & Min J 102:377-9 Ag 26 '16; Abstract. Eng N 76:633 O 5 '16
- Tests of large bridge struts reveal new facts. J. H. Griffith and J. G. Bragg. *il* Eng N 76: 49-52 Jl 13 '16
- Tests of 180 steel columns. Eng N 75:190-1 Ja 27 '16
- Tests of track bolts and wrenches. E. Stimson. *il* diags Iron Tr R 59:625-7 S 28 '16
- Valuable magnetic method for steel testing. Sci Am S 82:288 O 28 '16

See also Steel—Specifications

Steel, Copper coated

- Copper clad steel wire. Elec W 68:434 Ag 26 '16; Elec Ry J 48:409-10 S 2 '16; Am Soc M E J 38:827 O '16
- Making copper clad steel. *il* Iron Age 98:296-7 Ag 10 '16
- Manufacture of copper-coated steel. *il* Iron Tr R 59:265-6 Ag 10 '16

Steel, Hardening of

- Automatic steel hardening and tempering machine. *il* Mach 22:998-9 Jl '16
- Causes underlying steel hardening. A. Sauveur. Iron Tr R 58:132-4 Ja 13 '16
- Effect of chromium and tungsten upon the hardening and tempering of high-speed tool steel; abstracts, with discussion. C. A. Edwards and H. Kikkawa. Engineer 120:313-14 O 1 '15; Iron Age 96:1126-7 N 11 '15; Metal Work 84:819-20 D 24 '15
- Hardening and tempering of eutectoid steel and on the Shore test. H. M. Howe and A. G. Levy. Iron Tr R 59:372 Ag 24 '16
- Hardening high speed steel. Iron Tr R 59:270-1 Ag 10 '16
- Methods of quenching steel. S. N. Brayshaw. Iron Tr R 58:646 Mr 23 '16
- Roll hardening. C. L. Lucas. *il* diags Mach 22: 835-8 Je '16
- Volume changes during the hardening of steel. Sci Am S 82:215 S 30 '16

See also Case hardening; Steel, Heat treatment of

Steel, Heat treatment of

- Chisels. H. Fowler. *diags* Engineer 121:170 F 25 '16; Same. Iron Tr R 58:766 Ap 6 '16; Same. Ry Mech Eng 90:204-5 Ap '16; Same. Eng M 51:276-7 My '16; Same. Mach 22:779 My '16; Same cond. Iron Age 97:844 Ap 6 '16; Discussion. Engineer 121:170-1 F 25 '16
- Drill steel and its treatment. E. M. Weston. *diags* Eng & Min J 100:1003-5 D 18 '15
- Effect of sulphur on low-carbon steel. C. R. Hayward. *diag* Am Inst Min E Bul 118:1841-50 O '16; Same cond. Iron Age 98:756-8 O 5 '16; Same cond. Iron Tr R 59:735-7 O 12 '16
- Heat-treatment of drop-forging dies. F. E. Merriam. Mach 22:507-8 F '16
- Heat treatment of drop forgings. W. C. Peterson. Iron Tr R 58:1382-3 Je 22 '16
- Heat treatment of steel. G. Hutton. Ry Mech Eng 90:418-19 Ag '16
- Heat treatment of steel. H. Otto and others. *diags* Ry Mech Eng 90:470-2 S '16; Same cond. Ry Age 61:355-6 S 1 '16
- How to heat wire rod by continuous coil method. R. V. Sawhill. *il* Iron Tr R 57:1082-6 D 2 '15
- Influence of heat treatment on certain physical properties of steel; abstracts. A. Pomp. *diags* Am Soc M E J 38:421-2, 500 My-Je '16
- Influence of heat treatment on the thermoelectric properties and specific resistance of carbon steels. E. D. Campbell. Elec W 68: 965-6 N 11 '16
- Interesting job of heat treating at Steel improvement co., Cleveland. *il* Iron Tr R 57: 1238 D 23 '15
- Modern ideas in heat treatment. *il* diag Iron Tr R 59:1047-9 N 23 '16
- Oil quenching improves solid nickel-steel forgings. C. J. Yarnall. *il* Eng N 75:896-7 My 11 '16
- Oil versus water for quenching forgings. C. D. Young. *il* diags Iron Age 97:1546-7 Je 29 '16; Same. Iron Tr R 58:1424-6 Je 29 '16; Same cond. Ry Age 61:17-18 Jl 7 '16; Same cond. Ry Mech Eng 90:398-9 Ag '16; Abstract. Eng N 76:88 Jl 13 '16
- Steel anchors for merchant and battleships. E. F. Cone. *il* Iron Age 98:814 O 12 '16
- Temper colors and approximate temperatures. Iron Tr R 59:1050 N 23 '16
- Tempering and annealing. A. H. Hervey. Coal Age 10:348 Ag 26 '16; Same. Eng & Min J 102:344 Ag 19 '16; Same. Power 44:168-9 Ag 1 '16
- Tempering drill steel. J. B. Stewart. Eng & Min J 101:744 Ap 22 '16
- Tempering piston-drill bits. Eng & Min J 100: 925 D 4 '15
- What is heat treated steel? L. H. Fry. *il* Ry Mech Eng 90:335-7 Jl '16

See also Annealing

Steel, Microscopic examination of. *See* Metallography; Steel—Testing**Steel, Structural**

- Moving structural steel with tractor. *il* Sci Am 114:406 Ap 15 '16
- Will electric welding supplant riveting in fabricating structural steel? G. C. Hinckley. Eng Rec 74:524 O 28 '16

See also Bridges, Iron and steel; Cars, Steel; Silicon steel; Steel castings; Steel construction; Steel reinforcing bars

Steel, Tool. *See* Tool steel**Steel alloys**

- Alloy steel of special composition. J. B. Rhodes. Iron Age 96:1553-4 D 30 '15; Abstract. Am Soc M E J 38:90 Ja '16
- Corrosion of high chromium steels. R. Hadfield. Iron Age 97:202-3 Ja 20 '16; Abstract (Stainless steel). Eng M 50:947 Mr '16
- Development of commercial alloy steels. E. D. Rogers. Iron Age 96:990-3 O 28 '15; Same. Eng & Contr 44:431-3 D 1 '15; Same cond. Iron Tr R 57:839-40+ O 28 '15
- Electric alloy steels made on tonnage basis. *il* plan Iron Age 98:571-4 S 14 '16
- Gases occluded in alloy steels. J. W. Donaldson. *diag* Iron Age 98:928-30 O 26 '16
- High-speed steel alloy by new process. Sci Am 115:171 Ag 19 '16

Steel alloys—Continued

- Manufacture and uses of alloy steels. H: D. Hibbard. bibliog U S Bur Mines Bul 100:1-72 '15; Same. Ry R 58:281-4, 304-5, 345-6, 371-5, 680-3, 840-4; 59:59-60 F 19-Mr 11, My 13, Je 10, Jl 8 '16; Excerpt (Structural alloy steels). Iron Age 97:841-2 Ap 6 '16
- Special steels. S: L. Hoyt. Am Soc M E J 38:297-9 Ap '16; Same. Sci Am S 81:366-7 Je 3 '16
- Tungsten—its importance in the manufacture of alloy steel. R. C. McKenna. il Mach 22:412 Ja '16
- See also Chromium steel; Manganese steel; Molybdenum steel; Nickel steel; Silicon steel; Tool steel; Vanadium steel

Steel barges. See Barges, Steel

Steel belting. See Belting, Steel

Steel bridges. See Bridges, Iron and steel

Steel cars. See Cars, Steel; Freight cars, Steel

Steel castings

- Accident to the Quebec bridge. diags Engineer 122:322 O 13 '16
- Acid and basic steel for castings. E. F. Cone. Iron Age 98:682-3; Discussion. 674 S 21 '16
- Breakage of casting of rocker-joint bearing responsible for Quebec bridge disaster. il diags Eng Rec 74:370-1 S 23 '16
- Casting car wheels by new method. il Iron Tr R 59:472-7 S 7 '16
- Cause of the Quebec bridge disaster. il diags Ry Age 61:487-92 S 22 '16
- Computing the stresses in the Quebec rocker casting. diags Eng N 76:650-3 O 5 '16
- Converter and electric furnace in the manufacture of steel castings; Sivyver steel casting co., Milwaukee. il plan Iron Tr R 58:982-9 My 4 '16; Same. Foundry 44:194-201 My '16
- Converter steel castings low in manganese. E. F. Cone. il Iron Age 98:578-80 S 14 '16
- Defective steel castings and their remedies. J. H. D. Eagan. Foundry 44:273 Jl '16
- Electric furnace practice in making steel castings. T. S. Quinn. Iron Age 98:614-15 S 14 '16
- Faults of the small electro-arc furnace for melting and refining steel. W. M. McKnight. Met & Chem Eng 14:478-9 My 1 '16; Same. Iron Age 97:1008 Ap 27 '16
- Full evidence on the fall of the Quebec bridge span. il diags Eng N 76:572-5 S 21 '16; Same cond. Ry R 59:408-11 S 23 '16
- High stresses at center of Quebec rocker casting. F. P. Witmer; S. A. Keast. Eng N 76:760-1 O 19 '16
- How to gate and head steel castings properly. R. D. West. il diags Foundry 44:419-24 O '16
- Ideal electric furnace for the foundry. F. J. Ryan, E. E. McKee and W. D. Walker. Iron Age 98:616-17 S 14 '16
- Initial structure of steel castings. E. F. Cone. il Iron Age 96:1294-7 D 2 '15
- Jobbing foundry installs 2-ton furnace. il diags Iron Age 98:510-13 S 7 '16
- Lack of uniformity in steel castings. J. H. D. Eagan. Iron Age 96:1462-3 D 23 '15
- Machine molding in a jobbing steel foundry; Sivyver steel casting co. O. J. Abell. il plan Iron Age 97:1047-51, 1118-19 My 4 '16
- Manganese-steel castings in the mining industry. W. S. McKee. il diags Am Inst Min E Bul 108:2399-411 D '15; Same. Iron Tr R 57:1077-8 D 2 '15; Same cond. Iron Age 96:1362-5 D 9 '15
- Producing large cast steel locomotive frames. il plan Foundry 44:295-301 Ag '16
- Quebec bridge accident. H. C. Baird; R. S. Foulds. plan Eng N 76:857 N 2 '16
- Quebec bridge accident and stress analysis. Eng N 76:661-2 O 5 '16
- Quebec bridge castings. Iron Age 98:823 O 12 '16
- Quebec bridge disaster charged to casting. il Iron Age 98:638-9 S 21 '16
- Quebec rocker stresses. G. L. Bilderbeck. Eng N 76:760 O 19 '16
- Results of co-operation between the engineer and the foundry. J: H. Hall. Iron Tr R 59:512-13+ S 14 '16; Same. Foundry 44:461-3 N '16; Abstract. Iron Age 98:651 S 21 '16

Science testing of malleable and cast steel. A. Harley. il Foundry 44:61-7 F '16

Small open hearth for foundries. il diags Iron Tr R 58:1149-52 My 25 '16

Steel casting specifications; report of the committee of the American foundrymen's association. Iron Age 98:705 S 28 '16

Steel castings and physical properties. E. F. Cone. il Iron Age 97:1310-13 Je 1 '16

Steel castings as ship stabilizers. il Iron Age 98:69-70 Jl 13 '16

Steel castings for American battleships and merchantmen. E. F. Cone. il Iron Age 97:652-8 Mr 16 '16; Excerpts. Int Marine Eng 21:336-8 Jl '16

Successfully-operated two-ton open-hearth. il diags Foundry 44:169-73 My '16

Use of ferro-titanium in cast steel. Foundry 44:105-6 Mr '16

Use of gases for welding and cutting in steel foundries. J. B. Henry. Eng Soc W Pa 31:707-10 N '15

Use of titanium in steel castings. W. A. Janssen. il Iron Tr R 59:507-11 S 14 '16; Abstract. Iron Age 98:696-7 S 28 '16; Discussion. Iron Age 98:646, 673 S 21 '16

What was the cause of the initial failure at the Quebec bridge? diags Eng Rec 74:432-3 O 7 '16

See also Steel ingots; Steel metallurgy

Steel chimneys. See Chimneys, Steel

Steel columns. See Columns, Steel

Steel construction

- Arch-truss roof for drill hall, Second regiment armory, Chicago. il diags Eng N 75:152-3 Ja 27 '16
- Columns in first floor of Boston theater avoided by use of 106-foot truss. il diags Eng Rec 74:287-90 S 2 '16
- Erecting steel arch trusses. il Eng N 75:999 My 25 '16
- Errors in structural steel designing. E: Godfrey. diags Eng & Contr 44:438-40 D 8 '15
- Four-span steel-arch bridge at Indianapolis. Ind. il diags Eng N 75:596-8 Mr 30 '16
- Harlem river four-track subway tunnel. O. Hoff. il diags map Eng Soc W Pa 31:517-37 O '15; Excerpt. Eng & Contr 45:520-2 Je 7 '16; Discussion. Eng Soc W Pa 31:571-83 O '15
- Heavy steel bridge columns. diags Eng N 75:654 Ap 6 '16
- Large saving in roof steel by cantilevering purlins. J. P. Sartz. Eng N 74:1227 D 23 '15
- Large steel-frame ship shed contains special trusses designed for vertical and horizontal crane loading. il diags plan Eng Rec 74:550-2 N 4 '16
- Modernizing Narragansett co.'s South street station. C: H. Bromley. il plan Power 42:884-90 D 28 '15
- New columns and trusses to support added stories in Engineering societies building. diags Eng Rec 74:412-14 S 30 '16
- Philadelphia electric company power station A-2 has four 12-foot steel stacks 165 feet high. il diags Eng Rec 73:240-3 F 19 '16
- Placing a steel frame in an old wall-bearing building. il diags Eng N 76:778-9 O 26 '16
- Simple steel frame supports sidewalk shelter. E. K. Ruth. diags Eng Rec 73:446 Ap 1 '16
- Special details are used in design of steel elevated structures in Brooklyn. il diags Eng Rec 74:82-4 Jl 15 '16
- Springfield coliseum roof supported by 200-foot arches without tie rods. il diags Eng Rec 74:442-4 O 7 '16
- Steel arches are designed to eliminate rim tension in oil reservoirs. H: E. Post. diags Eng Rec 74:353-4 S 16 '16
- Steel buildings made up of pinned panels. il Sci Am 115:353 O 14 '16
- Steel frame of Printing Crafts building, New York, designed to prevent vibration. diags plan Eng Rec 73:46-7 Ja 8 '16
- Steel framing of a large power station. Newark, N. J. il diags Eng N 74:1260-4 D 30 '15
- Steel skeleton of Bell Parkway building contains heavy portal framing. il diag plan Eng Rec 73:712-13 My 27 '16
- Steel stair tower for bluff. St. Paul, Minn. diags Eng N 75:502 Mr 16 '16
- Taking care of eccentric load from balcony brackets. diag Eng N 76:763 O 19 '16

Steel construction—Continued

- Three-hinged arches and curved cantilever roof trusses used in recreation building, Chicago municipal pier. *il* diags Eng Rec 74:140-1 J1 29 '16
- Train-shed with columns between the tracks. diags Eng N 76:390-1 Ag 31 '16
- Two-story shed for New York's forty-sixth street pier will be 969 feet long. C. W. Staniford. diags Eng Rec 73:708-9 My 27 '16
- Wreck 15-story building in Chicago and replace with 17-story structure in 142 days. *il* Eng Rec 72:689-90 D 4 '15

See also Barges, Steel; Bridges; Bridges, Iron and steel; Building; Cars, Steel; Columns, Steel; Concrete, Reinforced; Concrete construction; Corrosion and anti-corrosives; Elevated railroads; Girders; Graphic statics; Office buildings; Steel, Structural; Strains and stresses; Towers, Steel; Water towers

Estimates

- Structural-steel equations. E. R. Rankin, jr. Eng & Min J 102:646-7 O 7 '16

Failures

- Collapse of a municipal lighting tower at San Jose, Cal. *il* Sci Am 114:103 Ja 22 '16

Steel corporation, United States. *See* United States steel corporation**Steel cutting**

- Cost of gas cutting. J. F. Springer. Mach 22: 581 Mr '16

See also Metal cutting; Rail cutting

Steel hardening. *See* Steel, Hardening of**Steel industry and trade**

- Acid exceeded basic steel castings in 1915. Foundry 44:328 Ag '16
- Austrian steel industry in war time. Engineer 121:335-6 Ap 21 '16
- Average monthly prices of iron and steel products, 1904-1915. Iron Tr R 58:107 Ja 6 '16
- Basic and acid castings in the United States and Germany. Iron Age 98:295 Ag 10 '16
- Billet prices at Pittsburgh for thirty years. Iron Age 97:21 Ja 6 '16
- Canadian metal imports from United States. W. L. Edmonds. Iron Age 98:359-61 Ag 17 '16
- Charts showing fluctuations in iron and steel prices for twenty-one years. Iron Tr R 58: 24a Ja 6 '16
- Conditions in the steel market. H. C. Estep. Ry Age 60:493-4 Mr 17 '16
- Electric steel industry's present status. Iron Age 97:94-7 Ja 6 '16
- English markets in a year of war. J. Horton. Iron Tr R 58:104-6+ Ja 6 '16
- Export and domestic steel demand. Met & Chem Eng 15:503 N 1 '16
- February export values make new record. Iron Age 97:948-9 Ap 20 '16
- Fluctuations in prices of steel products and in wages of common labor in the period 1899-1915. Iron Age 98:128a J1 20 '16
- French steel industry in war time. J. G. Butler, jr. Iron Age 98:1008-9 N 2 '16
- From paralysis to prosperity—a financial review. Iron Tr R 59:238-9 Ag 3 '16
- Future of steel consumption. Met & Chem Eng 15:276-7 S 15 '16
- Future of the steel industry. H. H. Campbell. Eng M 50:830-4 Mr '16
- German competition in iron and steel. Engineer 120:531-2 D 3 '15
- Germany's position in the steel industry. H. H. Campbell. Iron Age 97:1134-6 My 11 '16
- Great industries in Belgium before and during the war. H. Hubert. Engineer 121:55-7 Ja 21 '16
- Greatest year in iron and steel exports. Iron Age 98:304-5 Ag 10 '16
- Handling iron and steel export shipments. F. A. Kelly. Iron Age 98:1112-13 N 16 '16
- High prices bring profits in East. C. J. Stark. Iron Tr R 58:19-23 Ja 6 '16
- Home markets first in West. Iron Tr R 58:9 Ja 6 '16
- Industrial progress of sixty years; the lifetime of the Iron age. *il* Iron Age 97:31-8 Ja 6 '16

- Iron and steel exports in May, 1915 and 1916, and for eleven-month periods. Iron Age 98: 93-4 J1 13 '16
- Iron and steel in Canada. Eng & Min J 102: 382-3 Ag 26 '16
- Iron and steel market. Met & Chem Eng 15: 559-60 N 15 '16
- Iron and steel prices for eighteen years; with supplement. Iron Age 97:14-15 Ja 6 '16; Same cond. Eng & Contr 45:219 Mr 1 '16
- Iron and steel statistics. F. Hobart. Eng & Min J 101:69-71 Ja 8 '16
- Iron, steel and machinery exports in 1915. Iron Age 97:428-9 F 17 '16
- January iron, steel and machinery exports. Iron Age 97:609-10 Mr 9 '16
- Most remarkable steel situation. Met & Chem Eng 14:236-7 Mr 1 '16
- Outlook for the steel industry of France. H. H. Campbell. Iron Age 97:1196-8 My 18 '16
- Pittsburgh iron and steel markets. B. E. V. Luty. Eng & Min J 101:71-2 Ja 8 '16
- Pittsburgh makes its greatest record. C. F. Williams. Iron Tr R 58:28-31+ Ja 6 '16
- Prices present and past; quotation on leading products January 5, average for December, 1915, average for October, 1915, and average for January, 1915. Iron Tr R 58:40 Ja 6 '16
- Production of miscellaneous iron and steel products in the United States in 1915; tabulation. Iron Tr R 59:286 Ag 10 '16; Excerpt. Eng & Min J 102:342 Ag 19 '16
- Production of steel ingots and castings and finished rolled iron and steel. Iron Tr R 59: 90 J1 13 '16
- St. Louis—its place in the steel industry. *il* map Iron Age 98:877-80 O 19 '16
- Steel industry in the war zone. H. H. Campbell. map Iron Age 98:248-50 Ag 3 '16
- Steel industry of Belgium. H. H. Campbell. Iron Age 97:1261-3 My 25 '16
- Steel industry of Europe after the war. H. H. Campbell. Iron Age 97:944-5 Ap 20 '16
- Steel industry of Great Britain. H. H. Campbell. Iron Age 97:1057-9 My 4 '16
- Steel ingots and rolled products in 1915. Iron Age 98:96-7 J1 13 '16
- Steel production in 1915. Eng & Min J 102: 143 J1 15 '16
- Steel tonnages made in America. Met & Chem Eng 15:275 S 15 '16
- Steel trade developments in the United States. Engineer 120:597 D 24 '15
- Steel trade's wonderful year. Met & Chem Eng 14:6-7 Ja 1 '16
- Trade enjoys a most vigorous recovery; general review of the course of business in 1915. Iron Age 97:1-3 Ja 6 '16
- West felt improvement slowly. G. H. Manlove. Iron Tr R 58:32-4 Ja 6 '16
- What may the iron and steel trades expect when peace is declared in Europe?; views of manufacturers. Iron Age 97:28-30, 91-3 Ja 6 '16
- Will we produce too much steel? R. V. Sawhill. Iron Tr R 58:44-7 Ja 6 '16
- Year of war in the French steel trade. Iron Age 98:1113 N 16 '16
- See also* Iron industry and trade; Rolling mills; Steel works; United States steel corporation

Steel ingots

- Cause and effect of ghost lines in large steel forgings; abstracts. J. O. Arnold. Engineer 120:498 N 26 '15; Am Soc M E J 38:88 Ja '16; Iron Age 97:326 F 3 '16; Sci Am S 81: 239-40 Ap 8 '16; Iron Tr R 59:1103-6 N 30 '16
- Commercial production of sound ingots. W. D. Bradford. *il* diags Iron Age 96:1464-6 D 23 '15
- Controlling piping and segregation. H. M. Howe. *il* diags Iron Tr R 58:923-8; Discussion. E. F. Kenney. 58:928 Ap 27 '16
- Electric furnace as a soaking pit in the steel mill. T. F. Bailly. Iron Age 97:311 F 3 '16
- Formation of columnar and of free crystals during solidification. H. M. Howe. *diag* Met & Chem Eng 15:623-4 D 1 '16
- Hot top for ingot molds. *diag* Iron Age 98:451 Ag 31 '16
- Hot top for ingots. diags Iron Age 98:709 S 28 '16

Steel ingots—Continued

- Making sound steel commercially. E: F. Kenney, il diags Iron Tr R 57:349-55-1, 397-400 Ag 19-26 '15; Same (pt 2). Iron Age 95:1343-6 Je 17 '15; Excerpts. Ry Age 60:251-3 F 11 '16; Discussion. H: M. Howe. Iron Tr R 57:400+ Ag 26 '15
- Manufacture of large forging ingots. R. C. Woodward. diags Iron Age 97:1138-40 My 11 '16
- Methods of preventing piping in steel ingots; abstracts. E. Gathmann. diag Met & Chem Eng 13:656 O 1 '15; Ry Age 60:253 F 11 '16
- Mill practice and rail failures. Iron Tr R 58:766-8 Mr 30 '16
- Nick and break steel rail test. R. W. Hunt and C. W. Gennet, jr. il diags Iron Tr R 58:709-18 Mr 30 '16; Same cond. Iron Age 97:722-5 Mr 23 '16; Same cond. Ry 58:452-6 Mr 25 '16; Abstract. Eng 75:701-2 Ap 13 '16; Discussion. B. Stoughton. Iron Tr R 58:718-19 Mr 30 '16; Same. Iron Age 97:726 Mr 23 '16
- Production of sound steel ingots. diags Iron Age 98:760-2 O 5 '16
- Properties of ladle test ingots. J. R. Cain and H. S. Rawdon. il diags Iron Tr R 58:1419-21 Je 29 '16
- Qualities and defects of steel ingots. J. N. Kilby. diags Iron Age 98:824-5 O 12 '16
- Segregation and sponginess in ladle test ingots; abstracts. R. W. Hunt & co. Ry Age 59:1196-7 D 24 '15; Am Soc M E J 38:88-9 Ja '16
- Structure and properties of steel ingots. A. W. Brearley and H. Brearley. il Iron Age 98:943-6, 986-9 O 26-N 2 '16; Same cond. Engineer 122:310-11; Discussion. 299 O 6 '16
- See also Steel castings; Steel metallurgy; Steel works
- Steel metallurgy**
- Cost of electric furnace steel; experience with the Snyder furnace. F. T. Snyder. il diag Iron Age 96:926-8 O 21 '15; Same cond. Iron Tr R 57:1091-2 D 2 '15
- Electric furnace steels and alloy steels; discussion. J Ind & Eng Chem 8:947-50 O '16; Met & Chem Eng 15:448 O 15 '16; Iron Age 98:772-3 O 5 '16; Iron Tr R 59:709-1 O 5 '16
- Electric furnaces for producing refined-steel products. il Elec W 67:333-4 F 5 '16
- Electric steel direct from titaniferous iron ores. Iron Age 96:1416 D 16 '15
- Electric steel: how the temperature is automatically regulated in an electric steel furnace. W: H. Easton. il Sci Am 115:590 D 2 '16
- Electric steel melting. Iron Tr R 59:522 S 14 '16
- Gases occluded in alloy steels. J. W. Donaldson. diag Iron Age 98:928-30 O 26 '16
- Grönwall-Dixon electric furnace. J. A. Crowley. il diags Iron Tr R 59:571-3 S 21 '16; Same. Iron Age 98:517-20 S 7 '16
- Influence of some elements on the mechanical properties of steel. J. E. Stead. Engineer 122:287; Discussion. 278-80 S 29 '16
- Iron and steel works problems of 1915. J. E. Johnson, jr. Iron Age 97:24-7 Ja 6 '16
- Making sound steel commercially. E: F. Kenney, il diags Iron Tr R 57:349-55-1, 397-400 Ag 19-26 '15; Same (pt 2). Iron Age 95:1343-6 Je 17 '15; Excerpts. Ry Age 60:251-3 F 11 '16; Discussion. H: M. Howe. Iron Tr R 57:400+ Ag 26 '15
- Making success of duplex process. G. B. Waterhouse. il diags plan Iron Tr R 59:879-86 N 2 '16; Same; with discussion. Iron Age 98:999-1001+ N 2 '16
- Open hearth versus the electric furnace in the manufacture of commercial steels. S. Cornell. Met & Chem Eng 13:630-1 S 15 '15; Same. Sci Am S 81:107 F 12 '16
- Operating data on an important electric furnace installation. W. J. Kvie. il diags Elec R & W Elec'n 68:374-6 F 26 '16
- Place of the basic Bessemer process. H. H. Campbell. Iron Age 98:691-3 S 28 '16
- Process for melting steel scrap. Iron Tr R 59:418 Ag 31 '16
- Remediable or irremediable inferiority of electric steels. H: M. Howe. Iron Age 98:773-4 O 5 '16
- Sulphur content may be raised. J. S. Unger. Automobile 34:20-1 Ja 6 '16

Why the duplex process is a success. T. W. Robinson. Iron Tr R 59:1003-4 N 16 '16

See also Bessemer process; Iron metallurgy; Open hearth process; Rolling mills; Steel, Hardening of; Steel, Heat treatment of; Steel castings; Steel industry and trade; Steel ingots; Steel works; Tool steel

Steel pens. See Pens**Steel pipes. See Pipes, Steel****Steel poles. See Poles, Steel****Steel reinforcing bars**

- Clamped splices. E. L. Lasier; A. C. Hewitt. Concrete 9:136-7 O '16
- Clamping splices in reinforcing bars. W. A. Collings; E: Godfrey. Eng & Contr 46:442 N 22 '16
- Ductile steel for safety. W. H. Yates. Eng N 75:431 Mr 2 '16
- Power machine made on job bends reinforcing bars around disk. H. E. Ketchum. il diag Eng Rec 74:301 S 2 '16
- Strength of clamped splices in concrete reinforcement bars. C. A. Herrick. diag Eng & Contr 46:355-6 O 25 '16; Same. Concrete 9:165 N '16
- Strength of clamped splices in concrete reinforcement bars. E. L. Lasier. diag Concrete 9:85-8 S '16; Conclusions. Eng Rec 74:48-9 J1 8 '16; Conclusions. Eng & Contr 45:578-9 Je 28 '16
- Strength of clamped splices in concrete reinforcement bars. E. McCullough. Eng & Contr 46:442-3 N 22 '16
- Strength of clamped splices in reinforcement bars. E. McCullough. Concrete 9:104 S '16; Same. Eng & Contr 46:271-2 S 27 '16; Same. Eng Rec 74:361 S 16 '16
- See also Concrete, Reinforced

Cleaning

Brush of old wire rope run by motor cleans reinforcing. R: R. Bradbury. diags Eng Rec 73:366 Mr 11 '16

Steel square. See Square (instrument)**Steel tape**

Sag and slope diagrams for the steel tape. W. H. Rayner. Eng N 75:614 Mr 30 '16; Same. Eng & Min J 101:776 Ap 29 '16

Steel testing. See Steel—Testing**Steel ties. See Railroad ties, Steel****Steel towers. See Towers, Steel****Steel tubes. See Tubes, Steel****Steel works**

- Australia's first steel plant. il Iron Tr R 59:128-30 J1 20 '16
- Electric alloy steel made on tonnage basis. il plan Iron Age 98:571-4 S 14 '16
- Electric cranes in the steel mill. H. E. Kendall. il diag Iron Tr R 58:242-4 Ja 27 '16
- First steel billets made in Lake Superior district. Eng & Min J 100:935 D 4 '15
- Glimpses into the realm of Vulcan; ten pictorial impressions of characteristic phases of the American iron and steel industry. Iron Tr R 58:64a-64n Ja 6 '16
- Hanyang iron and steel works. il diags map plan Engineer 121:51-2, 78-80 Ja 21-28 '16
- How steel is made in Alabama. H. C. Estep. il plans Iron Tr R 58:1091-9 My 18 '16
- Important additions to plants of Bethlehem steel co. Iron Tr R 57:1221 D 23 '15
- Lighting of steel mills with quartz lamps. G: C. Keech. il plan Elec R & W Elec'n 69:508-10 S 16 '16
- Making success of duplex process. G. B. Waterhouse. il diags plan Iron Tr R 59:879-86 N 2 '16; Same; with discussion. Iron Age 98:999-1001+ N 2 '16
- Minnesota steel company completes Duluth plant. il diags plan Iron Age 96:1507-19 D 30 '15; Same cond. Eng & Contr 45:154-7 F 16 '16
- New iron and steel works construction. Iron Age 97:97-106 Ja 6 '16
- New steel works at Lowellville, Ohio. il diags plan Iron Age 97:476-80 F 24 '16
- Open hearths at Youngstown iron and steel co. R. V. Sawhill. il diag plans Iron Tr R 58:427-34 F 24 '16
- Pacific coast steel company's plants. il plans Iron Age 98:175-8 J1 27 '16

Steel works—Continued

- Pennsylvania steel co. completes first of new furnaces. *S. Higginson. il diags Iron Tr R 58:96-9+ Ja 6 '16*
 Plant improvements of Ashland, Ky., steel works. *il Iron Age 98:452-3 Ag 31 '16*
 Steel for the northwest; production begun in new Duluth plant. *il Eng M 50:776-7 F '16*
 Steel mill and the central station. *K. A. Pauly. il Gen Elec R 19:497-500 Je '16*
 Youngstown sheet and tube co. completes important improvements. *il Iron Tr R 58:100-1 Ja 6 '16*

See also Rolling mills; Steel industry and trade

Accounting

- Working efficiency of rolling steel. *S. Cornell. Met & Chem Eng 15:177-84 Ag 15 '16*

Employees

- Employing men for the steel mill. *A. H. Young. Iron Age 98:1108-9 N 16 '16*

Safety devices and measures

- Safety rules for iron and steel plants. *Iron Age 97:546-8 Mr 2 '16*

Sanitation

- Health conservation at steel mills. *J. A. Watkins. U S Bur Mines Tech Pa 102:1-34 '16*
 Excerpts. *Metal Work 86:473-5 O 13 '16*

Steeple. See Towers**Steering gear**

- Efficient steering. *C. R. Pratt. diags Int Marine Eng 21:207-8 Ap '16*

Stefánsson, Vilhjálmur, 1879-

- Return of the scientific section of the Stefánsson expedition. *map Sci Am 115:194+ Ag 26 '16*

- Will Stefánsson negotiate the Northwest passage by a new route? *Sci Am 115:418 N 4 '16*

Stellite

- Electric welded high-speed tools. *diag Iron Age 98:1107 N 16 '16*
 Stellite; machine tools made from the alloy. *Metal Ind n s 14:150 Ap '16*

Stereochemistry

- Action of sodium methylate upon the products of nitration of ortho-, para- and meta-chlorotoluenes. *H. S. Fry. Am Chem Soc J 38:1327-33 Jl '16*

- Evidence for the electronic formula of benzene and the substitution rule. *H. S. Fry. Am Chem Soc J 38:1323-7 Jl '16*

- Molecular rearrangement of some triaryl-methylchloramines. *A. F. Morgan. Am Chem Soc J 38:2095-2101 O '16*

- Molecular rearrangement of triaryl-methyl-hydroxylamines. *B. A. Stagner. Am Chem Soc J 38:2069-81 O '16*

- Molecular rearrangement of triphenyl-methyl-halogenamines. *I. Vosburgh. Am Chem Soc J 38: 2081-95 O '16*

- Molecular rearrangements of β -triphenyl-methyl- β -methyl hydroxylamines and the theory of molecular rearrangements. *J. Stieglitz and B. A. Stagner. Am Chem Soc J 38:2046-68 O '16*

Stereopticon. See Lantern projection**Stereoscopic views**

- Cultivating stereoscopic sight. *W. M. Brodie. Eng & Min J 102:743-4 O 21 '16*

Sterotyping

- Sterotyping for newspapers. *Inland Ptr 57: 659-60 Ag '16*

See also Electrotyping

Stetson, John B., co.

- Aids to employees of world's largest hatters. *M. D. Gehris. il Textile World 51:3559+ Ag 12 '16*

Stevens institute of technology

- Commencement address. *A. C. Humphreys. Stevens Ind 33:186-211 Jl '16*

- William Hall Walker gymnasium. *il plans Stevens Ind 32:283-93 O '15*

Stevenson, Archibald Alston, 1862-

- President of the American society for testing materials. *por Eng Rec 74:28 Jl 1 '16*

Stibnite

- Behavior of stibnite in an oxidizing roast. *H. O. Hofman and J. Blatchford. Am Inst Min E Bul 109:91-7 Ja '16*
 Abstract. *Met & Chem Eng 14:163-4 F 1 '16*
 Discussion. *Am Inst Min E Bul 113:983 My '16*
 Determination of antimony in the products obtained by roasting stibnite. *W. T. Hall and J. Blatchford. Am Inst Min E Bul 109: 99-101 Ja '16*
 Excerpts. *Met & Chem Eng 14:164 F 1 '16*

Stickney, Alpheus Beede, 1840-1916

- Sketch. *por Ry Age 61:278 Ag 18 '16*

Stillman, Thomas Bliss, 1852-1915

- Sketch. *por Stevens Ind 32:348-55 O '15*

Stills. See Distillation**Stock companies. See Corporations****Stock judging. See Live stock—Judging****Stock rooms. See Stores systems****Stock yards. See Chicago—Stock yards****Stockings. See Hosiery****Stocks**

See also Corporations; Investments

Stokers, Mechanical

- Automatic shovel stoking machine. *diag Iron Age 97:898 Ap 13 '16*

- Burning coke breeze. *il diag Power 44:2-4 Jl 4 '16*

- Burning no. 3 buckwheat coal on a Coxe stoker. *B. B. Hood. diag Power 43:881-2 Je 20 '16*

- Economics of stoker, economizer and super-heater. *A. A. Potter and S. L. Simmering. Elec W 67:371-2 F 12 '16*
 Same. *Am Gas Light J 104:235-6 Ap 10 '16*

- Effect of lubrication on cost of operation. *A. G. Kinyon. Ry R 59:590-1 O 28 '16*

- Elements of smokeless furnace design. *O. Monnett. diags Heat & Ven 13:17-24 Ja '16*

- Installation data for underfeed stokers. *Elec W 68:1009 N 18 '16*

- Kincaid stationary stoker. *diags Textile World 51:1001 F 5 '16*

- Ko-shovel mechanical stoker. *il diag Elec W 67:840 Ap 8 '16*
Elec R & W Elec'n 68:777-8 Ap 29 '16
Power 43:728-9 My 23 '16
Ry Mech Eng 90:264 My '16
Coal Age 9:1018-19 Je 10 '16

- Mechanical stokers; report of committee of American railway master mechanics' association. *Ry R 58:926 Je 24 '16*

- Modification of stoker drive which increased reliability. *diag Elec W 66:1434-5 D 25 '15*

- Moloch horizontal-retort underfeed stoker with novel features. *il Elec Ry J 48:985-6 N 4 '16*
Elec W 68:923-4 N 4 '16
Power 44: 647-8 N 7 '16

- Performance of an underfeed stoker installation. *W. G. Claytor and S. S. Williams. il Elec W 67:375-6 F 12 '16*

- Recent progress in boiler installations and some results of furnace investigations. *W. A. Hoffman. il diags Assn Eng Soc J 55:149-69 N '15*

- Reducing stoker troubles by use of bolts small enough to shear when stoker clogs. *Elec W 67:772 Ap 1 '16*

- Relation of stokers to smoke abatement. *J. G. Worker. il Textile World 51:4359+ O 7 '16*

- Stevens underfeed stoker. *il plan Power 44: 53-4 Jl 11 '16*
 Same. *Coal Age 10:466 S 16 '16*

- Street stokers in service August 31, 1916 and type of locomotive; tabulation. *Ry R 59: 494-5 O 7 '16*

- Wetzel stoker. *il diag Power 44:162-3 Ag 1 '16*

- What effect does the mechanical placing of fuel in fireboxes have on the cost of operation? committee report with discussion. *Ry R 59:588-90 O 28 '16*
 Same cond. *Ry Age 61: 795-7 N 3 '16*
 Same cond. *Ry Mech Eng 90: 561-4 N '16*
 Abstract. *Am Soc M E J 38: 1041 D '16*

Stoking. See Firing**Stone**

- Determining the weight of stone in vessels. *A. S. Ackerman. Boston Soc C E J 3:203-6 My '16*
 Excerpt. *Eng & Contr 45:549-50 Je 14 '16*

Stone—Continued

Stone measurement. Metal Work 85:306 Mr 3 '16

See also Blasting; Granite; Limestone; Pavements, Stone; Pebbles; Quarries and quarrying; Road materials; Rocks; Slate

Stone, Artificial

Applying scagliola to cement. E. McCullough. Bldg Age 38:54-5 D '16

See also Concrete; Concrete blocks; Concrete stone

Stone, Concrete. *See* Concrete stone

Stone, Crushed. *See* Crushed stone

Stone crushers. *See* Crushing machinery

Stone pavements. *See* Pavements, Granite; Pavements, Stone

Stones. *See* Precious stones

Stoneware. *See* Pottery

Storage

See also Coal storage; Freight houses; Oil storage; Pattern storage; Stores systems; Water storage

Storage batteries

Active materials and electrolyte of the alkaline storage battery. L. C. Turnock. Met & Chem Eng 15:259-62 S 1 '16

Alkaline storage battery; abstracts. L. C. Turnock. Met & Chem Eng 15:478 O 15 '16; Elec W 68:724 O 7 '16

Dry storage battery. il Elec W 66:1443 D 25 '15

Electrification of isolated factories. diags Engineer 121:104-5, 128-9 F 4-11 '16

Flushing storage batteries. W. A. J. Hahn. il Elec R & W Elec'n 68:245 F 5 '16

Improved automobile starting and lighting battery. il Elec W 68:1114 D 2 '16

Improved cover for vehicle storage batteries. il Elec R & W Elec'n 68:209 Ja 29 '16

Improved electric-vehicle batteries. il Elec W 67:450 F 19 '16

Installation and working of lead storage batteries. R. Rankin. Elec R & W Elec'n 67:1107-8 D 18 '15

Meter-test current from portable batteries. il Elec W 67:373-4 F 12 '16

Recent installations made by Winnipeg company. H. A. P. Langstaff. il Elec W 68:705-8 O 7 '16

Secondary cell installation for telegraph offices. diags Engineer 121:512-13 Je 16 '16

Securing meter test current from portable batteries. R. S. White. il Elec W 67:657 Mr 18 '16

Standardization of lead storage batteries for electric vehicles; abstract. Elec W 68:581 S 16 '16

Standby battery for a. c. distribution service. J. L. Woodbridge. il diags Elec W 67:257-60 Ja 29 '16

Storage-battery auxiliary for small central station. Elec R & W Elec'n 69:649-50 O 7 '16

Storage battery; effect when in series with a constant-current generator. Gen Elec R 19:1137 D '16

Storage battery substitute for dry cell. il Elec Ry J 47:374 F 19 '16

Stored energy of the submarine. il Sci Am 114:178 F 12 '16

Supports for storage-battery cells. diag Elec W 66:1316 D 11 '15

Thin-plate batteries for reserve service, with table showing number and size of batteries employed by New York Edison company. P. Torchio. il Elec W 68:77-8 J1 8 '16

Ventilation of battery rooms. M. A. Walker. Power 44:723-4 N 21 '16

Venus dry storage battery. Elec R & W Elec'n 68:169-70 Ja 22 '16

What happens to a neglected storage battery. J. E. Schipper. il Automobile 35:518-23 S 28 '16

See also Electric batteries

Charging

Anderson charging receptacle and plugs for electric garages. il Elec R & W Elec'n 68:304 F 12 '16

Arrangement to throw a battery out of circuit when charging current is interrupted. P. Capraro. diag Elec W 66:1317-18 D 11 '15

Automatic storage-battery charging switchboards for fire-alarm systems. G. A. Broder. il diags Elec R & W Elec'n 69:929-31 N 25 '16

Battery charging outfits, etc. il Horseless Age 37:229-30 Mr 15 '16

Charging Edison storage batteries. Engineer 121:498 Je 16 '16

Charging electric vehicle batteries. Engineer 122:82-3 J1 28 '16

Charging panel for storage battery for operation of emergency lights on passenger vessels. Elec R & W Elec'n 68:650 Ap 8 '16

Charging set for gasoline automobiles. il Elec W 67:1008 Ap 29 '16

Charging small storage batteries. diags Sci Am S 82:316-17 N 11 '16

Charging storage batteries from 440-volt mains. Horseless Age 36:503 D 1 '15

Charging twelve-cell battery from 110 volt lighting circuit. diags Automobile 35:279 Ag 17 '16

Electric-vehicle practice of Stroh brewery, Detroit. il Elec R & W Elec'n 68:20 Ja 1 '16

Features of the electrical equipment in a storage-battery factory. il Elec R & W Elec'n 68:982-5 My 27 '16

Mercury-arc rectifier for charging small storage batteries. C. M. Green. il diag Gen Elec R 19:805-7 S '16

New control equipment for charging of starting, lighting and ignition batteries. il Elec R & W Elec'n 68:478 Mr 11 '16; Elec W 67:617-18 Mr 11 '16

Rectifier for battery charging. il Automobile 35:539 S 28 '16

Rectifying device for charging storage batteries. il Elec R & W Elec'n 68:995 My 25 '16

Robbins & Myers battery-charging motor-generator outfit. il Elec R & W Elec'n 69:737 O 21 '16; Elec W 68:876 O 28 '16

Test of battery-charging equipment for garage shows high efficiency. Elec R & W Elec'n 68:1154 Je 24 '16

Use of storage batteries in operation of selector calling circuits for telephone train dispatching. diags Ry R 59:292-4 Ag 26 '16

Storage battery cars. *See* Motor cars (railroad)

Storage battery locomotives. *See* Electric locomotives

Storage racks

Electrical maintenance methods in a great office building; Equitable building, New York city. il Elec W 67:206-8 Ja 22 '16

Storax

Gathering storax from the sweet gum tree. il Sci Am S 80:377 D 11 '15

Store buildings

Arnold, Constable & co. store, New York city. il plan Arch & Bldg 47:408-11 N '15

Standard arcade, New York city. il Arch & Bldg 47:402-5 N '15

See also Department stores

Store fronts

Progress in store front lighting with gas. C. I. Hodgson. il diag Illum Eng Soc 11:885-7 no 8 '16

Stores. *See* Department stores

Stores systems

Bin-tag system provides perpetual inventory. il Elec Ry J 48:323-4 Ag 19 '16

Checking losses in the storeroom. W. G. Astle. Iron Tr R 58:235-9 Ja 27 '16

Color checks on steel requisitions. Factory 17:544+ N '16

Handling stores according to the cash-control idea. W. G. Astle. il Elec R & W Elec'n 67:1012-15 D 4 '15

How to get a closer fit between the factory and tool-supply room. G. H. Radebaugh and J. A. DeTurk. il Factory 17:671-3 D '16

Mechanical aids to storekeeping; photographs. Factory 17:138-9 Ag '16

Mine warehouse system. E. I. Roberts. plan Coal Age 9:115-17, 154-6 Ja 15-22 '16

Municipal supply department; store keeper and storehouse. H. M. Foster. Munic Eng 50:131-2 Ap '16

Seven stock-storing plans. il Factory 17:536-7 N '16

Stores systems—Continued

- Steel storage in a Hartford factory. *il* Iron Age 98:11-14 J1 6 '16
- Stock keeping in adding machine factory; Burroughs adding machine co., Detroit. F. L. Prentiss. *il* Iron Age 96:1347-51 D 9 '15
- Storehouse methods that reduce labor. W. V. C. Bulkeley. *il* Elec Ry J 48:101-3 J1 15 '16
- Storeroom system. A. Schwarz. *il* Elec Ry J 47:1174-6 Je 24 '16
- Stores accounting. W. A. Sauer. *Am Gas Light J* 104:314-17 My 15 '16
- Successful stores keeping system. C. Kist. *Eng M* 51:106-12 Ap '16
- Supply department methods on the Seaboard. *il* Ry Age 60:672-6 Mr 24 '16
- Systematizing the handling of mill supplies. *Textile World* 51:4255 S 30 '16
- Taylor system in Franklin management. G. D. Babcock. *Ind Management* 52:339-54 D '16

See also Municipal supplies; Pattern storage; Storage racks

Storm King highway

- Building the Storm King road. *il* Eng N 76:596-7 S 28 '16
- Rock work on the Storm King highway, Cornwall, N. Y. H. L. Hicks. *il* Eng & Contr 46:433 N 15 '16

Storms

See also Electric railroads—Blockades; Sail; Rain; also Galveston, Texas—Hurricane, 1915

Stove trade

- Advisory bureau for the stove trade. *Metal Work* 85:571-6 Ap 28 '16
- History of stove development. *Metal Work* 86:12, 76, 139+ J1 7, 21, Ag 4 '16

Stoves

- Evolution of the cooking stove. *Metal Work* 86:497-8 O 20 '16
- Oven will not heat. *Metal Work* 85:257-8 F 18 '16
- Retrospect in early stove construction. *il* Metal Work 86:457 O 13 '16
- Summit combination range. *il* Metal Work 85:76 Ja 7 '16

See also Blast furnace stoves; Electric stoves; Fireless cookers; Gas stoves

Straight line motion

- Variations of Peaucellier motion. F. R. Honey. *diags Mach* 22:1079 Ag '16

Straightening

- Drilling, reaming and straightening rifle barrels. W. H. Avis. *il* Mach 22:675-8 Ap '16
- Heavy smithing job done in open on bent crusher spindle. H. S. Carpenter. *il* Eng Rec 74:511 O 21 '16

Straightening machines

- Pipe-straightening device. C. C. Semple. *diags Eng & Min J* 101:353-4 F 19 '16
- Straightening press for steel car members. W. H. Hauser. *il* diags Ry Mech Eng 90:526 O 16 '16
- 10-roll straightening machine. *il* Iron Age 97:538 Mr 2 '16

Strain (word)

- Stress or strain. H. B. Seaman. *Eng N* 75:284 F 10 '16

Strainers

- Intakes and intake lines in railway water service. *il* diags Ry R 59:689-93 N 18 '16
- Non-clogging manhoie strainer. *diag Elec Ry J* 47:325 F 12 '16
- Strainer for suds pumps. *diag Am Soc M E J* 38:1040 D '16
- To catch loose pump valves. C. W. Watkin. *diag Power* 44:634 O 31 '16; Same. *Eng & Min J* 102:826 N 4 '16
- Water strainer with motor-drive attachment. *il* Elec W 68:384 Ag 19 '16

Strains and stresses

- Alternating stress endurance of steel. B. P. Haigh. *il* diags Iron Age 97:1144-7 My 11 '16
- Analysis and tests held to show advantages of new flat-slab reinforcement. E. Smulski. *diags Eng Rec* 73:217-19, 247-50 F 12-19 '16
- Analysis of stresses. H. A. Everett. *Int Marine Eng* 21:473-4 O '16
- Are eccentric details weak? E. Godfrey. *Eng N* 75:186-7 Ja 27 '16

- Automatic measurement of stresses. R. Welcker. *il* Ry Age 61:66 J1 14 '16
- Beams without lateral support. R. Fleming. *Eng N* 75:648-9 Ap 6 '16
- Beams without lateral support; relations of formulas. H. Kercher. *Eng N* 75:860-1 My 4 '16
- Bending moment in continuous reinforced-concrete beams. R. J. Roark. *diags Eng N* 75:354-5 F 24 '16
- Bolted and lagscrewed joints in timber. H. D. Dewell. *diags Eng N* 76:796-7 O 26 '16
- Buffing stresses in box cars. R. N. Miller. *diags Ry Mech Eng* 90:409-11 Ag '16
- Charts for estimating the strength of bolts. W. F. Fisher. *Power* 43:42-3 Ja 11 '16
- Columns in first floor of Boston theater avoided by use of 106-foot truss. *il* diags Eng Rec 74:287-90 S 2 '16
- Computing the stresses in the Quebec rocker casting. *diags Eng N* 76:650-3 O 5 '16
- Concrete flows under sustained load. E. C. Smith. *Eng Rec* 73:329-30 Mr 4 '16
- Countersunk rivets. R. Fleming. *Eng N* 76:496-7 S 14 '16
- Cross-relations of strengths of metals in tension, compression, torsion and transverse loading. G. B. Upton. Sibley J 30:85-9 D '15; Excerpt. *Mach* 22:548 Mr '16
- Cutting a pier in two to make it stronger. S. F. Holtzman; G. M. Williams. *diags Eng N* 75:380-1 F 24 '16
- Data for exponential fatigue hypothesis; abstract. H. F. Moore and F. B. Seely. *Eng N* 76:136 J1 20 '16
- Deflection of trusses. E. H. Casper and C. J. Kennedy. *diags W Soc E J* 21:115-35 F '16
- Design and construction of forms for concrete work. R. A. Sherwin. *Eng & Contr* 45:209-19, 231-4 Mr 1-8 '16
- Design of beams, girders and trusses. E. McCullough. *diags Bldg Age* 36:27-8 J1; 33-4 Ag; 29-30 S; 27-9 O; 37-9 N; 27-9 D '14; 37:39-41 Ja; 31-3 F; 27-8 Mr; 49-50 Ap; 49-50 My; 47-8 Je; 45-6 J1; 27-8 Ag; 29-30 S; 37-8 N; 51-2 D '15; 38:61-2 Ja; 53-4 F; 53-4 Mr; 63-4 Ap; 47-8 My; 63-4 Je; 53-4 J1 '16
- Design of steel stacks. H. M. White. *Eng & Contr* 46:140-2 N 22 '16
- Design of steel stacks. W. A. Hitchcock. *diags Eng & Contr* 46:369-72 O 25 '16
- Designing compression members for small stresses. A. Smith. *Eng & Contr* 45:375-6 Ap 19 '16
- Eccentric loading problems. G. Paaswell; D. Gutman. *Eng N* 74:1238-9 D 23 '15
- Economic design of pile foundations. C. E. Anderson. *diag Eng & Contr* 46:285-7 S 27 '16
- Economical section for short span, reinforced arches carrying light highway loadings. C. B. McCullough. *diag Eng & Contr* 46:93-4 J1 26 '16
- Economy of continuity in reinforced concrete. R. J. Roark. *Eng N* 75:790-2 Ap 27 '16
- Effect of corrosion on the ductility and strength of brass. P. D. Merica. *Met & Chem Eng* 15:321-4 S 15 '16
- Efficiency of unsymmetrical riveted joints. R. N. Blackburn. *diags Power* 44:203-6 Ag 8 '16; Abstract. *Am Soc M E J* 38:759-60 S '16; Discussion. *Power* 44:430, 662-4, 696-7 S 19, N 7-14 '16
- Elastic curves and influence lines. I. Duberstein. *Eng Rec* 73:292 F 26 '16
- Elastic curves and influence lines simplify analysis of beams. J. P. J. Williams. *Eng Rec* 72:762-5 D 18 '15
- Elastic limit and yield point. H. A. Everett. *Int Marine Eng* 20:567 D '15
- Endurance of metals under alternating stresses; abstract. B. P. Haigh. *Am Soc M E J* 38:344-6 Ap '16
- Errors in structural steel designing. E. Godfrey. *diags Eng & Contr* 44:438-40 D 8 '15
- Expansion and contraction stress in pipes. *Power* 43:351 Mr 14 '16
- Failure of structural brasses. P. D. Merica and R. W. Woodward. *Metal Ind n s* 13:459-61, 165-8 N-D '15; Conclusions. *Eng & Min J* 100:640 O 16 '15
- Formulas for determining the pressures on piles supporting masonry. J. R. Biedinger. *Eng & Contr* 45:245-6 Mr 15 '16

Strains and stresses—Continued

- Full-load secondaries were eliminated at Quebec. J. Mayer. Eng N 76:517 S 14 '16
- Graphical analysis of arches with fixed ends greatly simplified. C. S. Whitney. Eng Rec 72:324-6 S 11 '15; Correction. 72:798 D 25 '15
- High stresses at center of Quebec rocker casting. F. P. Witmer; S. A. Keast. Eng N 76:760-1 O 19 '16
- How to find the maximum bending moment of a beam. Mach 22:1086 Ag '16
- Influence lines as deflection diagrams. D. B. Steinman. diags Eng Rec 74:648-50 N 25 '16
- Influence of speed on endurance tests. W. C. Popplewell. Engineer 122:339-40 O 20 '16
- Instrument for determining actual strains. il Met & Chem Eng 14:550-1 My 1 '16
- Is a part stronger than the whole? G. E. Strehan. diags Eng N 75:284-5 F 10 '16
- Lagscrewed joints in timber. H. D. Dewell. il diags Eng N 76:162-4 J1 27 '16
- Lateral bending resistance of metal bolts and lag screws; abstract. H. A. Thomas. diags Am Soc M E J 38:1038-9 D '16
- Long-span concrete arched bents support roof of Chicago Hebrew institute. il diag Eng Rec 74:257-8 Ag 26 '16
- Longitudinal stresses of ships. A. Liddell. Engineer 122:344-5 O 20 '16
- Lug angles and stress distribution. L. A. Waterbury. diag Eng Rec 73:184-5 F 5 '16
- Magnetic studies of mechanical deformation in certain ferromagnetic metals and alloys. H. Hanemann and P. D. Merica. il Am Inst Min E Bul 108:2371-85 D '15; Discussion. 113:937-2 My '16
- Mathematical theory of the elastic arch. W. Whited. diags Eng Soc W Pa 32:271-304; Discussion. 305-44 My '16
- New formula for the crown thickness of arches. J. P. Schwada. Eng N 76:882-2 N 9 '16
- New formulas and diagrams give deflections of beams under any loading. C. A. Ellis. Eng Rec 73:84-5 Ja 15 '16
- New formulas for weights of girders and trusses. A. G. Hayden. Eng N 75:422-3 Mr 2 '16
- New method of determining stresses in web members of a Fink truss. H. B. Wrigley. diags Bldg Age 38:53 My '16
- Optical stress analysis. il diags Sci Am S 82: 268-9 O 21 '16
- Optically studying stresses in machine parts. Horseless Age 37:157+ F 15 '16
- Progress report of special committee of American society of civil engineers on steel columns and struts. Eng & Contr 45:86-9 Ja 26 '16
- Proposed motor-truck loads for highway bridges. O. W. Childs. Eng N 76:898-9 N 9 '16
- Quebec bridge accident. H. C. Baird; R. S. Foulds. plan Eng N 76:857 N 2 '16
- Quebec bridge accident and stress analysis. Eng N 76:661-2 O 5 '16
- Quebec rocker stresses. G. L. Bilderbeck. Eng N 76:760 O 19 '16
- Rectangular pressure vessels. H. J. Vander Eb. Locomotive 30:164-9 Ap '15; Same. Mach 22:867-2 Je '16; Abstract. Am Soc M E J 58:598 J1 '16
- Riveted joints being tested by series of simple and accurate mirror extensometers. il diag Eng Rec 73:638 My 13 '16
- Safe design depends on validity of assumptions underlying theoretical analysis. W. M. Wilson. Eng Rec 74:506-7 O 21 '16
- Safe practice in the use of crane chains. E. B. Morgan. diag Eng & Contr 44:440 D 8 '15
- Special methods of reinforced concrete design. M. J. Lorente. diags Boston Soc C E J 2:265-79 S '15; Discussion. 2:280-2; 3:29-35 S '15, Ja '16
- Spiral vs. vertical steel in concrete columns. P. P. Furber. Eng Rec 73:277 F 26 '16
- Strength and stiffness of steel under biaxial loading. A. J. Becker. bibliog il diags Ill U Eng Exp Sta Bul 85:1-65 '16
- Strength of webs of I-beams and girders. H. F. Moore and W. M. Wilson. il diags Ill U Eng Exp Sta Bul 86:1-50 '16; Conclusions. Eng & Contr 46:82 J1 26 '16; Eng Rec 74: 179 Ag 5 '16
- Stresses in concrete beams and slabs. diags Concrete 8:138-9 Mr '16
- Stresses in 50-ton steel derrick reduced by elimination of goosenecks. il diags Eng Rec 73:113-14 Ja 22 '16
- Stresses in rivets used in direct tension. J. M. Friedland. diag Eng N 75:308-9 F 17 '16
- Stresses in the mine roof. R. D. Hall. diags Am Inst Min E Bul 105:2013-21 S '15; Discussion. 113:978-82 My '16
- Stresses produced by expansion and contraction. Power 43:735 My 23 '16
- Temperature stresses in a series of concrete girder spans under different conditions of end support. T. D. Gregg. diag Eng & Contr 45:333-4 Ap 5 '16
- Tests apparently substantiate the theoretical formula for strength of outstanding flanges. R. J. Roark. il diags Eng Rec 74:592-3 N 11 '16
- Tests of bolted joints in timber framing. H. D. Dewell. il diags Eng N 76:111-15 J1 20 '16
- Theoretical determination of bending moment and deflection in columns. M. Gordon; H. Epstein; D. Kaplan. Eng & Contr 45:226-7 Mr 8 '16
- Theoretical determination of the bending moment and deflection in columns subjected to combined bending and compression. D. Kaplan. diags Eng & Contr 45:101-4 F 2 '16
- Theory of displacements applied to analysis of suspension bridges. C. S. Whitney. Eng Rec 74:234-5 Ag 19 '16
- Things we do not know about structural engineering. W. M. Wilson. Eng & Contr 46: 362-4 O 25 '16
- Truss deflections accurately determined by angle changes and elastic weights. D. B. Steinman. diags Eng Rec 73:644-6, 680-2 My 13-20 '16
- Unit stresses for timber; manufactures' table. Eng N 76:273 Ag 10 '16
- Use of influence lines; with discussion. R. W. Flowers and H. N. Jones, jr. diags W Soc E J 21:136-58 F '16
- Web strength of I-beams and girders. H. F. Moore. il diags W Soc E J 21:209-25; Discussion. 225-31 Mr '16
- What was the cause of the initial failure at the Quebec bridge? diags Eng Rec 74: 432-3 O 7 '16
- See also* Arches; Bridge design; Bridges; Bridges—Load; Building; Columns; Earth pressure; Elastic limit; Girders; Graphic statics; Riveting; Roofs; Sag; Strength of materials; Trusses; Wind pressure

Straits Settlements**Commerce**

- Cotton goods in the Straits Settlements. R. M. Odell. U S Bur For & Dom Com 115:1-57 '16

Strategy. See Military art and science**Straw**

- Opening straw for spinning. diag Textile World 51:1168 F 19 '16

Straw, Artificial

- Manufacture of artificial straw. il Textile World 51:1137+, 2763+ F 19, Je 10 '16

Strawberry dam

- Upstream face of a rockfill dam sealed with a sliding concrete apron. il diag Eng Rec 74:260-2 Ag 26 '16

Strawboard

- Experimental studies of strawboard waste purification. H. B. Hommon. Eng & Contr 45:476-9 My 24 '16

Stray currents

- Data on electric railway track leakage. G. H. Ahlborn. diags U S Bur Stand Tech Pa 75: 1-22 '16

- Stray currents on a bridge. P. Justus. il Eng N 74:1285-6 D 30 '15

See also Electrolytic corrosion

Stream flow

- Behavior of limestone streams during drought. Eng & Contr 46:410 N 8 '16

- Effect of channel on stream flow. N. C. Grover. Boston Soc C E J 3:465-76 N '16

- Mass diagram for power and water-supply computations. W. L. Ratcher. Eng N 76: 376-8 Ag 24 '16

Stream flow—Continued

Power estimates from stream flow and rainfall data. D. M. Wood. Boston Soc C E J 3: 77-120 Mr '16; Discussion. 3:299-328 Je '16; Excerpt (Suggestion for using stream flow records of the U. S. geological survey). Eng & Contr 45:576 Je 28 '16

Stream flow, not rainfall, best criterion for yield. C. Herschel. Eng Rec 74:103-4 Jl 22 '16

Stream flow, not rainfall, best criterion for yield? J. P. Wells. Eng Rec 74:330 S 9 '16

See also Stream measurement; Water flow

Stream measurement

Chemical method of gaging stream flow. W. H. Sawyer. Eng & Contr 45:542-3 Je 14 '16

Field methods of measuring stream flow. Metal Work 84:768-9 D 17 '15

Methods of stream gaging. W. S. Pardoe. diag Eng N 75:889 My 11 '16

Practical methods of measuring flowing water. C. O. Wisler. bibliog Eng & Contr 45: 536-9 Je 14 '16

Shelters for automatic water-stage recorders. G. J. Lyon. il diags Gen Elec R 19:893-5 O '16

State engineer's river survey guides water adjudicators. P. A. Cupper. Eng N 76:5-6 Jl 6 '16

See also Water flow

Street accidents

See also Automobile accidents

Street brooms. *See* Street cleaning brooms

Street car lighting. *See* Car lighting

Street car service. *See* Street railroads—Schedules

Street cars

All-steel cars for Binghamton railway. il Elec Ry J 46:1269-70 D 25 '15

Birney one-man car. il diags Elec Ry J 47:556-8 Mr 18 '16

Brakes, couplers and other safety devices. il diags Elec Ry J 48:636-42 S 30 '16

Brooklyn articulated car. il Elec Ry J 47:693-4 Ap 8 '16

Car body from an operating standpoint. il diags plans Elec Ry J 48:572-84 S 30 '16

Car design a question of capacities and weights. Elec Ry J 47:9 Ja 1 '16

Car design discussed in Boston. Elec Ry J 47:818 Ap 29 '16

Cars of high seating capacity for Hazleton, Pa. il Elec Ry J 47:178-9 Ja 22 '16

Center-door cars for Benton Harbor, Mich. il plan Elec Ry J 48:366-7 Ag 26 '16

Cleveland modernizes fifty cars. il diags Elec Ry J 47:344-7 F 19 '16

Construction materials and framing design. il Elec Ry J 48:595-601 S 30 '16

Demand for the one-man or light safety car. N. Le Grand. Elec Ry J 48:1114 N 25 '16

Design for increasing car capacity. il Elec Ry J 48:1030 N 11 '16

Des Moines front and center-door cars. il plan Elec Ry J 47:948-50 My 20 '16

Detroit single-end motor cars. il Elec Ry J 47:225 Ja 29 '16

Development of the electric railway car. il plans Elec Ry J 48:561-71 S 30 '16

Doors, seats and miscellaneous interior equipment. il diags Elec Ry J 48:613-21 S 30 '16

Field of the one-man car. J. B. Ervin. il Elec Ry J 48:144 Jl 22 '16

Fifty pay-as-you-pass cars for Rochester. diag plan Elec Ry J 47:1196 Je 24 '16

Illinois traction system's one-man car. il plan Elec Ry J 48:864-6 O 21 '16

Installation and maintenance of car lightning arresters. R. H. Parsons. diags Elec Ry J 48:502-3 S 16 '16

Interurban and work cars for the K. C., C. C. & St. J. Ry. J. N. Spellman. il plan Elec Ry J 47:1098 Je 10 '16

Latest Connecticut city cars. il Elec Ry J 47: 856-7 My 6 '16

Lengths and widths for modern car bodies. il diags plans Elec Ry J 48:585-94 S 30 '16

Low-level car for Rochester, N. Y. il diags Elec Ry J 47:764-7 Ap 22 '16

Manually-operated door and step control. il Elec Ry J 47:660-1 Ap 1 '16

Mechanical door and step operating device for center-entrance cars. A. Taurman. il diags Elec Ry J 47:1008-9 My 27 '16

New car for Public service railway, Newark, N. J. H. A. Benedict. il diags Elec Ry J 47:114-15 Ja 15 '16

New low-floor, end-entrance car. il diags Elec Ry J 47:1168-9 Je 24 '16

One car made from two. il diags Elec Ry J 48:980-2 N 4 '16

One-man cars becoming popular; reports from companies which have been using one-man cars. il diags Elec Ry J 47:20-5 Ja 1 '16

One-man cars giving unrestricted view forward. il Elec Ry J 48:1028 N 11 '16

One-man cars in Australia. P. J. Pringle. Elec Ry J 46:1112 D 4 '15

One-man cars in cities of large size. Elec Ry J 47:457-8 Mr 4 '16

One-man, light-weight cars. W. E. Moore. Elec Ry J 47:953-4 My 20 '16

One-man, two-man cars for Spokane. il plan Elec Ry J 46:1223-4 D 18 '15

Open-air car proves popular in Vancouver. il Elec Ry J 48:401 S 2 '16

Open cars changed to prepayment. il diags Elec Ry J 47:592-4 Mr 25 '16

Operation of light weight cars. J. C. Thirlwall. il Gen Elec R 19:879-83 O '16

Progress in car equipment lubrication. A. Green. il Elec Ry J 47:819-22 Ap 29 '16

Rebuilding forty old-type cars in Des Moines. il Elec Ry J 48:1027 N 11 '16

Rebuilt cars for rush-hour service. C. H. Shaw. il Elec Ry J 48:194 Jl 29 '16

Removable pilot used with couplers. H. H. Buchmann. il Elec Ry J 47:506 Mr 11 '16

Rush-hour car made of two single-truck units. diag Elec Ry J 48:1069-70 N 18 '16

Single-truck, arch-roof cars of the United traction company, Albany. il diags Elec Ry J 48:71-2 Jl 8 '16

Single-truck, center-entrance, low-step car at Glens Falls, N. Y. il diags Elec Ry J 46:1226-7 D 18 '15

Stepless double-deck car introduced in Vienna. L. Spangler. il plan Elec Ry J 47:1030-2 Je 3 '16

Trucks, wheels, axles and gearing. il diags Elec Ry J 48:628-35 S 30 '16

Truss-side construction for railway cars. L. B. Stillwell. il Elec Ry J 48:1112-14 N 25 '16

Two years' experience with one-man cars. R. M. Howard. Elec Ry J 47:601-2; Discussion. 599-600 Mr 25 '16

Vestibuling 560 semi-convertible cars. il diag Elec Ry J 48:302-6 Ag 19 '16

See also Car doors; Car houses; Car painting; Car wheels; Cars; Electric railroads—Rolling stock; Fenders; Street railroads

Heating

See Car heating

Lighting

See Car lighting

Signs

Route signs for Denver. il diags Elec Ry J 47: 1143-4 Je 17 '16

Trailers

Detroit center-entrance trailers. C. L. Keller. il Elec Ry J 46:1131-2 D 4 '15

Street cleaning

Clean streets in Philadelphia. W. H. Connell. il Munic Eng 50:71-3 F '16

Intensive street cleaning methods; standards of street cleanliness as developed by the Citizens' street cleaning bureau in the central business district of Chicago. R. T. Fox. il W Soc E J 21:232-49 Mr '16; Same cond. Eng Rec 73:252-4 F 19 '16; Discussion. W Soc E J 21:249-65 Mr '16

Municipal school for street cleaners. C. L. Edholm. il Munic J 41:507-10 O 26 '16

Recommendations for street cleaning in New York city. R. T. Fox. Good Roads n 3 12; 115 S 2 '16; Abstract. Eng N 76:227 Ag 3 '16; Abstract. Munic Eng 51:52 Ag '16; Excerpt. Eng & Contr 46:207 S 6 '16

Selection, training and care of the horse for street cleaning work. D. J. Mangan. Eng & Contr 46:389-91 N 1 '16

Street cleaning—Continued

- Street cleaning in New York. Munic J 41: 240-1 Ag 24 '16
 Street cleaning problem. G. H. Hanna. il Munic Eng 50:26-8 Ja '16; Same. Munic J 40:7-9 Ja 6 '16
 Street cleaning with power driven street sweepers at Los Angeles, Cal. Eng & Contr 46:216 S 6 '16
 Street dirt and cleaning not measurably unhealthful. Eng N 76:831 N 2 '16
 To prevent street littering. J: S. Crandell. Munic J 40:406 Mr 23 '16

See also Cleaning of cities; Refuse and refuse disposal; Refuse collection; Snow removal; Street cleaning apparatus; Street sprinkling

Cost

- Cincinnati street cleaning. Munic J 41:125 Ag 3 '16
 Costs of flushing and scrubbing paved streets at St. Paul, Minn. M. N. Goss. Eng & Contr 46:391 N 1 '16
 Machinery in street cleaning. Munic J 40: 103-4 Ja 27 '16
 Sterling-Kindling motor driven squeegee for street cleaning. diag Eng & Contr 45:211 Mr 1 '16; Same. Munic J 40:416-17 Mr 23 '16
 Street cleaning costs at Savannah, Ga. E. R. Conant. Eng & Contr 46:397 N 1 '16
 Street cleaning in Cleveland. Munic J 40:47 Ja 13 '16
 Street cleaning in Philadelphia. Munic J 40: 898 Je 29 '16
 Street cleaning in Scranton, Pa. Munic J 40: 432-3 Mr 30 '16
 Street cleaning problem. G. H. Hanna. il Munic Eng 50:26-8 Ja '16; Same. Munic J 40:7-9 Ja 6 '16; Excerpts. Eng N 74:1257 D 30 '15; Excerpts. Eng & Contr 45:20-2 Ja 5 '16; Excerpts. Eng Rec 73:83 Ja 15 '16; Abstract. Good Roads n s 11:108-9 Mr 4 '16

Street cleaning apparatus

- Baker pick-up sweeper. il Munic J 41:140 Ag 3 '16
 B. M. E. pipe street flusher. il Munic J 41:83 Jl 20 '16; Good Roads n s 12:127-8 S 2 '16; Eng N 76:659-60 O 5 '16
 Kinney heater and distributor. il Munic Eng 51:112-13 S '16
 Pezzetti street sweeper. il Munic J 41:245 Ag 24 '16

Street cleaning apparatus, Motor

- Cleveland pays railway to flush streets. H. C. Ebeling. il diag Elec Ry J 48:64-5 Jl 8 '16; Same cond. Eng Rec 74:45-6 Jl 8 '16
 Experience of Glasgow, Scotland, with motor street sweeping machines. Eng & Contr 46: 218-19 S 6 '16
 Gas-electric suction street sweeper. W. S. Leggett. il Gen Elec R 19:715-19 Ag '16
 Gasoline-electric tractors in New York street cleaning service. il Munic Eng 50:28-30 Ja '16
 Motor tractors as New York street cleaners. C. L. Edholm. il Horseless Age 38:300-1 N 1 '16
 Motor truck operation and accounting. C: A. Dickens. il Munic Eng 51:sup23+ N '16
 Motorcycle street sweeper. il Munic Eng 50: 37 Ja '16
 Motorcycle street sweeper. A. Marple. il Munic Eng 51:113-14 S '16
 Motor-driven squeegees in street cleaning service. il Sci Am 115:66 Jl 15 '16
 Motor-driven street cleaning outfit. diag Sci Am 114:406 Ap 15 '16
 Sterling-Kindling motor-driven squeegee. il Good Roads n s 11:176 Ap 1 '16
 Sterling-Kindling motor driven squeegee for street cleaning. diag Eng & Contr 45:211 Mr 1 '16; Same. Munic J 40:416-17 Mr 23 '16
 Street flushing at Chicago with automobile flushers. Eng & Contr 46:301 O 4 '16
 Street sweeper with brush encased to produce auxiliary suction. il Automobile 34:1166 Je 29 '16
 Studebaker flusher. Munic J 40:60-1 Ja 13 '16
 Tiffin motor-driven street flusher. il Good Roads n s 11:24-5 Ja 1 '16; Eng & Contr 45: 122 F 2 '16
 Vacuum street cleaning in St. Louis; abstracts of report. C. M. Talbert. il Munic J 41:317-19 S 14 '16; Munic Eng 51:145-8 O '16

Street cleaning brooms

- Holcomb street cleaning brooms. il Munic J 40:810-11 Je 8 '16

Street dust. See Dust**Street excavations. See Street openings****Street lamps. See Street lighting; Street lighting fixtures****Street lighting**

- Arc lamps for street illumination. C. A. B. Halvorson, Jr., S. C. Rogers and R. B. Hussey. il diags Illum Eng Soc 11:251-68; Discussion. 315-30 no 3 '16
 Characteristics of a series lighting system. R. E. Uptegraff. Elec W 68:79-80 Jl 8 '16
 Cleveland's new street-lighting installation. il Elec R & W Elec'n 68:750-1 Ap 29 '16
 Details of new street lighting system of Pocatello, Idaho. diags Eng & Contr 46: 456-7 N 22 '16
 Downtown lighting system for San Francisco. W. D. Ryan. il map Elec W 68:457-9 S 2 '16
 Economical control for decorative street lighting at Madison, Wis. il plan Elec R & W Elec'n 69:850-1 N 11 '16
 Effect of the type "C" lamp on public street lighting. J: West. il Gen Elec R 19:1055-9 D '16
 Effective illumination of streets; with discussion. P. S. Millar. il Illum Eng Soc 10:pt 1a 1039-58; Discussion. 1058-79 no 9 '15
 Experiences in connection with Chicago's street lighting system. A. C. King. W Soc E J 21:483-94 Je '16
 Exterior illumination; abstract. L: Bell. Elec R & W Elec'n 69:676 O 14 '16
 Gas street lighting. F. R. Hutchinson. il diags Illum Eng Soc 10:pt 1a 1080-5 no 9 '15
 Glare in street lighting. Illum Eng Soc 11: 518-24 no 4 '16
 Illuminated street-lamp-changer. il Elec R & W Elec'n 68:169 Ja 22 '16
 Incandescent street lighting regulating apparatus. H. H. Reeves. il diag Gen Elec R 19:798-804 S '16
 Lighting of streets; abstract. P. S. Millar. Elec R & W Elec'n 69:762 O 23 '16
 Lighting system at Titusville, Pa. il Elec W 68:1053-4 N 25 '16
 Method for replacing series incandescent street lamps. H. W. Watt. il Elec W 67:941 Ap 22 '16
 Method of distributing energy for street-lighting installation. il diag Elec W 67:717-19 Mr 25 '16
 Milwaukee's extensive street-lighting plan. il Elec W 67:645-8 Mr 18 '16
 Milwaukee's new municipal street lighting system. F. H. Bernhard. il diag Munic J 40: 645-8, 683-5 My 11-18 '16
 Model street lighting installation at Port Jervis, N. Y. H. A. Tinson and D. M. Diggs. il map Gen Elec R 19:225-9 Mr '16; Same. Munic Eng 51:5-8 Jl '16
 Most elaborate street lighting inaugurated in San Francisco. il Elec R & W Elec'n 69: 624 O 7 '16
 New street-lighting system of Milwaukee. il Elec R & W Elec'n 68:579-82, 626-31 Ap 1-8 '15
 New types of incandescent lamps and their relation to the street lighting problem. W. H. Rolinson. il diags Illum Eng Soc 11: 269-81; Discussion. 315-30 no 3 '16
 Nitrogen filled incandescent lamp for street lighting. A. H. Ford. Eng & Contr 45:305-6 Mr 29 '16
 Ornamental lighting in Salt Lake City under the new lighting-improvement-district law. B. W. Mendenhall. il Elec W 67:1313 Je 3 '16
 Ornamental street lighting—1916; tabulation. Munic Eng 50:155-6 Ap '16
 Practical application of the principles of scientific street lighting. F. A. Vaughn. il diags Illum Eng Soc 11:282-314; Discussion. 315-30 no 3 '16
 Present-day tendencies in street lighting. P. S. Millar. il Elec R & W Elec'n 69:415-17 S 2 '16
 Recent street lighting problems and developments. J. R. Cravath. W Soc E J 21:477-82 Je '16
 Report of the committee on progress: street lighting. Illum Eng Soc 11:727-34 no 8 '16

Street lighting—Continued

Residence streets present the most important problems in street lighting and require the most intelligent planning to get the best results. J. R. Cravath. *Am Gas Light J* 105:154-5 S 4 '16

Salt Lake City's splendid new street lighting. *il Elec R & W Elec'n* 69:626-7 O 7 '16

Salt Lake City's white way; cost data. *il Elec W* 68:701 O 7 '16

Selling municipal and highway lighting. T. F. Kelly. *il Elec R & W Elec'n* 68:915-17 My 20 '16

Street lighting discussion. *Munic J* 40:364-5 Mr 16 '16

Street lighting, fixtures, contracts, etc. C. F. Lacombe. *Elec R & W Elec'n* 69:761 O 28 '16

Street lighting on cost-of-service basis. A. S. Ives. *Elec W* 67:949 Ap 22 '16

Street lighting problems in war time. *Illum Engr* 9:284 S '16

Street lighting system of Sheboygan, Wis. C. H. Shaw. *il diag Elec W* 68:464-5 S 2 '16

Symposium on street lighting. *Elec R & W Elec'n* 68:404-5 Mr 4 '16

Tendencies in street lighting practice. *Elec W* 68:475-8 S 2 '16

Terminal-pole construction for multiple street-lamp circuits. C. L. Wheeler. *diags Elec W* 67:548 Mr 4 '16

Tests of street illumination. P. S. Millar. *il Illum Eng Soc* 11:479-508; Discussion. 508-17 no 4 '16

\$3,750,000 for Chicago street lighting. *Elec W* 67:1436-7 Je 17 '16

Up-to-date lighting in Freeport, Texas. J. H. Ross. *il Elec W* 68:465-6 S 2 '16

Village street lighting from three-wire lighting transformers. *diag Elec W* 68:958 N 11 '16

War lighting. *Illum Engr* 9:27 Ja '16

Year's progress in illuminating engineering. *Illum Engr* 9:227-8 Jl '16

See also Electric lamps, Tungsten; Electric lighting; Lighting

Contracts

Dual contracts for street lighting—measurement of gas taken. *Gas Age* 38:370-2 O 2 '16

Improved form of street lighting contract in Wisconsin. *Elec W* 68:471-3 S 2 '16

Milwaukee enters into indeterminate street lighting contract for city parks. *Elec W* 68:685 S 30 '16

New form of street-lighting contract proposed for Racine. *Elec R & W Elec'n* 67:1144 D 25 '15

Street lighting by indeterminate contracts. *Elec R & W Elec'n* 68:801-3 My 6 '16

Cost

Arc lamps show low-outage record at Detroit. *Elec W* 67:546 Mr 4 '16

Boston lighting contract considered by commission. *Elec R & W Elec'n* 68:747 Ap 29 '16

Cost of street lighting in thirteen United States cities; Details of annual operating cost as estimated for Milwaukee's new lights; tabulation. *Munic J* 40:684-5 My 18 '16; Same. *Elec R & W Elec'n* 68:630-1 Ap 8 '16

Economics of group system of street lighting. M. Ferry and E. M. Tompkins. *maps Elec W* 68:177-8 Jl 22 '16

First cost of and savings affected by gas-filled street lamps in Hammond, East Chicago and Michigan City. *Elec W* 68:864 O 28 '16

Fort Wayne company offers to take over municipal lighting plant. *Elec W* 67:531 Mr 4 '16

Operating costs of Boston incandescent street lamps. *Elec R & W Elec'n* 68:851 My 13 '16

Report of Chicago gas & electric department. *Elec W* 68:512 S 9 '16

Special lighting of downtown Chicago street by Merchants' association. *il Elec W* 68:771-2 O 14 '16

Street lighting contract on kilowatt-hour basis for Spencer, Mass. *Elec R & W Elec'n* 68:589 Ap 1 '16

Street lighting in Detroit. *Munic Eng* 50:128-30 Ap '16

Street lighting on a cost-of-service basis. G. W. Van Derzee. *Elec W* 67:758-60 Ap 1 '16

Statistics

Street lighting statistics for cities over 25,000 population, showing types of lamps and rates for service; tabulation. *Elec W* 68:476-8 S 2 '16

Street lighting fixtures

Boulevard lighting system with novel street designation. *il Elec W* 66:1266 D 4 '15

California types of street-lighting standards. *il Elec R & W Elec'n* 67:1018-19 D 4 '15

Combination trolley and ornamental lighting posts. *il Elec R & W Elec'n* 69:564 S 23 '16

Combined trolley pole and ornamental post installation. *il Elec W* 68:474 S 2 '16

Cost data for two styles of street lighting standards used at Riverside, Cal. *il Elec W* 68:89 Jl 8 '16

Designs of ornamental street-lighting posts. *il Elec R & W Elec'n* 68:937 My 20 '16

Improvements in street lighting fixtures. *il Elec W* 68:1017 N 18 '16

Inexpensive lamp standards suitable for many occasions. *diags Elec W* 67:44 Ja 1 '16

New designs for street lighting units. *il Munic Eng* 49:224-5 D '15

New type lighting fixture. *diags Munic Eng* 49:244 D '15

Novalux lighting. *il Munic J* 40:219-20 F 10 '16

Olympian ornamental iron cluster post. *il Elec R & W Elec'n* 68:480 Mr 11 '16

Originality in street lighting standards. A. Marple. *il Munic Eng* 51:95-6 S '16

Ornamental street lighting units. G. T. Dunklin. *il diags Munic Eng* 50:9-10 Ja '16

Pressed-steel ornamental lamp standards. *il Elec R & W Elec'n* 68:348 F 19 '16

Providing adequate street illumination for unusual local conditions. *il diag Elec W* 68:619-21 S 23 '16

Street lighting fixtures for Mazda lamps, multiple and series. *Munic J* 39:898 D 9 '15

Street lighting for Salt Lake business district. *il Elec R & W Elec'n* 67:1009 D 4 '15

Street-lighting installation for Norwalk, O. *il plan Elec R & W Elec'n* 68:69 Ja 8 '16

Summer resort lamp post construction. S. W. Borden. *il diags Elec W* 68:460 S 2 '16

Street numbers. See House numbers

Street oiling

Cost of asphaltic oil treatments at Portland. *Me. Eng & Contr* 46:111 Ag 2 '16

Street oiling in Victoria. *Munic J* 41:257 Ag 31 '16

Street openings

Authority to open streets and lay gas mains—payment of inspectors. *Gas Age* 38:369 O 2 '16

Convenient street guard. *il Munic J* 39:881 D 9 '15

Cost of opening streets for pipe trenches. W. F. Verner. *Heat & Ven* 13:33-4 F '16

Cost of removing and replacing pavements incident to the installing of heating lines in city streets. W. F. Verner. *Heat & Ven* 13:33-7 My '16

Development of the street opening problem; its effect and control. N. S. Sprague. *Good Roads n s* 11:119-22 Mr 4 '16; Abstract. *Munic J* 41:189 Ag 17 '16

Regulation of excavations in streets of Houston, Tex. *diag Eng N* 75:549 Mr 23 '16; Same cond. *Am Gas Light J* 104:301 My 8 '16

Repairing pavement cuts in Ottawa. *diag Munic J* 40:10 Ja 6 '16

Subsurface congestion has become an acute problem in New York. C. N. Green. *il Am Gas Light J* 105:49-51 Jl 24 '16; Discussion. *Am Gas Light J* 105:56-7, 186 Jl 24, S 18 '16; *Munic J* 41:190-1 Ag 17 '16

Street railroad law

Street railway obligations to repair and maintain public ways. W. E. Conant. *Munic J* 40:509-10 Ap 13 '16

See also Electric railroads—Law; Street railroads—Franchises; Street railroads—Regulation

Street railroads

Iowa street and interurban railway association meeting. Dubuque, Iowa, May 10. *Elec Ry J* 47:895-902 My 13 '16

Street railroads—Continued

- Pennsylvania association meets. Elec Ry J 46:1205-13 D 18 '15
 Pennsylvania street railway association discusses railway problems at Lancaster, May 9-10. Elec Ry J 47:904-9 My 13 '16
 President's address at Southwestern convention, D: Daly. Elec Ry J 47:991-2 My 27 '16

See also Car houses; Electric railroads; Elevated railroads; Snow removal; Street cars; Subways; Trackless trolley

Accidents

- Conferences and commission rulings following Boston drawbridge accident. diags Elec Ry J 48:1103-4 N 25 '16
 Motor vehicle accidents and traffic regulation. H. G. Winsor. Elec Ry J 48:875; Discussion. A. D. Brown. 876-7 O 21 '16
 Regulation of motor vehicle traffic in Seattle. A. J. Falknor. Elec Ry J 48:349-50 Ag 26 '16

See also Derailments; Safety devices and measures; Street railroads—Safety devices and measures

Accounting

- Estimating cost of track construction on a unit-time basis. C. H. Fuller. Elec Ry J 47:80-4 Ja 8 '16

Advertising

- Advertising for increased business of City light & traction company, Sedalia, Mo. Elec Ry J 48:140-2 Jl 22 '16
 Chicago Elevated service advertised. il Elec Ry J 48:358-9 Ag 26 '16

Buildings

See Car houses

Cars

See Street cars

Claims

- American electric railway claim association annual meeting. Elec Ry J 48:820-1, 868-78 O 14-21 '16
 Appraisal of property damage. F. M. Hamilton. Elec Ry J 48:350-1 Ag 26 '16
 Claim work fundamentals. E. P. Walsh. Elec Ry J 48:877-8; Discussion. C. G. Rice. 878 O 21 '16
 Code of ethics and policies of Associated bureaux of Pittsburgh railways. Elec Ry J 48:712-13 O 7 '16
 Damages and accident prevention at Boston. Elec Ry J 48:721-2 O 7 '16
 Moral obligation of witnesses. Elec Ry J 48:105-6, 147 Jl 15-22 '16
 Pacific claim agents' association 8th annual convention. Elec Ry J 48:307-11 Ag 19 '16

Construction

See Electric railroads—Construction; Street railroads—Track

Cost of construction

- Unit track construction costs for thirty-one jobs. il Elec Ry J 47:559-62 Mr 18 '16

Cost of operation

- Cost of operation in Cleveland. L. R. Nash. Elec Ry J 47:455 Mr 4 '16
 Economics of rush-hour service. Elec Ry J 47:495-7 Mr 11 '16
 Edinburgh tramways. Engineer 122:413 N 10 '16
 Railway operation in Cleveland. F. W. Doolittle. Elec Ry J 47:359-64 F 19 '16

Employees

- Another Interborough wage increase. Elec Ry J 48:413-14 S 2 '16
 Bay state company signs wages agreement. Elec Ry J 48:1072 N 18 '16
 B. R. T. employees complete organization. Elec Ry J 48:719-20 O 7 '16
 Brooklyn wages are increased. Elec Ry J 48:412-13 S 2 '16
 Employees of New York railways repudiate peace pact. Elec Ry J 48:484-9 S 16 '16
 General tie-up threatened in New York. Elec Ry J 48:229-34 Ag 5 '16
 How European roads deal with strikes. J. P. Fox. Elec Ry J 48:535-6 S 23 '16

- Increases in wages in New York. Elec Ry J 47:53 Ja 1 '16

- Individual contract in Indianapolis. Elec Ry J 48:679-81 S 30 '16

- Interborough rapid transit co. strike in New York. Elec Ry J 48:449-52 S 9 '16

- New Boston wage agreement signed. Elec Ry J 48:154-5 Jl 22 '16

- New York strikes well in hand. Elec Ry J 48:546 S 23 '16

- Rhode Island arbitration award. Elec Ry J 47:30-1 Ja 1 '16

- Solving the labor problem in Philadelphia. T. Conway, jr. Elec Ry J 48:968-72 N 4 '16

- Strikes in Westchester county and four New York boroughs settled on compromise basis. Elec Ry J 48:275-8 Ag 12 '16

- Training men for supervisory and executive positions. L. C. Bradley. Elec Ry J 48:768-71 O 14 '16

- Training platform men. W. A. Heindle. Elec Ry J 47:954-5 My 20 '16

- Union men quit in Indianapolis. Elec Ry J 48:1073 N 18 '16

- What New York union men demand. Elec Ry J 48:328-9 Ag 19 '16

Equipment and supplies

- Automatically operated track cleaner. E. C. Sherwood. diags Elec Ry J 47:659 Ap 1 '16

See also Electric railroads—Equipment and supplies; Street cars

Fare collecting

- Cash receipt holder. il Elec Ry J 47:51 Ja 1 '16
 Equipment for fare registration and collection. il Elec Ry J 48:622-7 S 30 '16
 Fare collection revolutionized at Boston. il Elec Ry J 47:77-9 Ja 8 '16
 Methods of fare collection. W: J. Harvie. Elec Ry J 47:449-50 Mr 4 '16

Fare registers

- Automatic electric fare register. il Elec R & W Elec'n 69:131-2 Jl 15 '16
 Combined conductor's seat and register-operating mechanism. E. C. Sherwood. il Elec Ry J 47:174 Ja 22 '16
 Equipment for fare registration and collection. il Elec Ry J 48:622-7 S 30 '16
 Johnson fare box counts five kinds of fares. il Elec Ry J 47:136 Ja 15 '16
 Metal tickets for registration of all classes of fares. il Elec Ry J 48:1120-1 N 25 '16

Fares

- Bay State loses 6-cent fare case. Elec Ry J 48:412 S 2 '16
 Cleveland street railway situation. F. W. Doolittle. Munic Eng 51:132 O '16
 Copper-zone system sustained. Elec Ry J 47:1089-90 Je 10 '16
 Copper zones in Norwich, Conn. R. W. Perkins. map Elec Ry J 47:567 Mr 18 '16
 Encouragement in the Bay State decision. Elec Ry J 48:683 S 30 '16
 Long rides for a nickel. D. J. McGrath. maps Elec Ry J 48:222-5 Ag 5 '16
 Los Angeles rate case. map Elec Ry J 47:862 My 6 '16
 Massachusetts Northeastern fare hearing. Elec Ry J 46:1256-7 D 25 '15
 No reduction in school fares in Massachusetts. Elec Ry J 47:103 Ja 8 '16
 Overhead charges in the Bay State case. Elec Ry J 48:311 Ag 19 '16
 Owl car fares. Elec Ry J 48:146 Jl 22 '16
 Six-cent fare disallowed for Bay State. Elec Ry J 48:444-8 S 9 '16
 Trenton fare increase denied. Elec Ry J 46:1258-9 D 25 '15
 Various values of a nickel. Elec Ry J 48:279 Ag 12 '16

See also Street railroads—Fare collecting; Street railroads—Franchises; Street railroads—Transfers

Finance

- Boston Elevated seeks financial relief. Elec Ry J 48:671-7 S 30 '16
 Des Moines refinancing settled. Elec Ry J 47:332 F 12 '16
 Handling accident reserves. H. D. Anderson. Elec Ry J 47:955-6 My 20 '16

Street railroads—Finance—Continued

Investment per revenue passenger and density of traffic. D. J. McGrath. Elec Ry J 48:58-60 J1 8 '16

Prospects poor for Seattle municipal lines. A. L. Valentine. Elec Ry J 47:1185-6 Je 24 '16
Rapid transit progress in Philadelphia. diag Elec Ry J 48:1016-17 N 11 '16

Return on Massachusetts investment. D. J. McGrath. Elec Ry J 47:256-9 F 5 '16

San Francisco municipal system without exposition traffic. Elec Ry J 48:138-9 J1 22 '16

United Railroads of San Francisco new financing. Elec Ry J 46:1276 D 25 '15

See also Street railroads—Fares; Street railroads—Franchises; Street railroads—Valuation

Franchises

Agreement reached in Dallas, Texas. Elec Ry J 48:903-4 O 21 '16

Indeterminate franchise for key system. Elec Ry J 48:1071 N 18 '16

National issues in local franchises. C. L. King. Elec Ry J 48:797-801 O 14 '16

New franchise adopted in Des Moines. Elec Ry J 47:205-6 Ja 29 '16

New franchises sought in Pittsburgh. Elec Ry J 47:96 Ja 8 '16

Grades

Steep grade on San Francisco street railway overcome. plans Eng N 75:541 Ap 6 '16

Inspection of watches

See Watch inspection

Law

See Street railroad law

Management

Doherty railway managers meet. Elec Ry J 48:866-7 O 21 '16

Improved one-man operation in Australia. P. J. Pringle. Elec Ry J 47:172-3 Ja 22 '16

Instructing motormen in Louisville, Ky. diags Elec Ry J 47:1043 Je 3 '16

Methods of handling track work in Kansas City; with cost tables. il diags Elec Ry J 48:430-6 S 9 '16

One-man cars in cities of large size. Elec Ry J 47:457-8 Mr 4 '16

Practicability and operation of one-man cars. D. R. Locher. Elec Ry J 47:946-7 My 20 '16

Rehabilitating railway receipts at Binghamton, N. Y. il map Elec Ry J 48:708-12 O 7 '16

Two years' experience with one-man cars. R. M. Howard. Elec Ry J 47:601-2; Discussion. 599-600 Mr 25 '16

Why Toledo railway decided on train operation. C. A. Brown. Elec Ry J 48:723 O 7 '16

See also Street railroads—Employees; Street railroads—Public relations; Street railroads—Records; Street railroads—Schedules; Street railroads—Stops; Watch inspection

Public relations

How to treat the public. A. W. Warnock. Elec Ry J 48:135-8 J1 22 '16

Improvement of public relations; outline of some of the more important methods. Elec Ry J 48:336-7 S 2 '16

Ivy L. Lee speaks on publicity. Elec Ry J 48:809-10 O 14 '16

Kansas City railway gains public favor. Elec Ry J 48:666-70 S 30 '16

Symposium on company publications. Elec Ry J 48:787-93 O 14 '16

See also Street railroad law; Street railroads—Fares; Street railroads—Franchises; Street railroads—Regulation; Street railroads—Service; Street railroads—Valuation

Records

Equipment records on the Binghamton railway. Elec Ry J 47:1053-4 Je 3 '16

Punches vs. pencils for daily car-shop reports. H. Branson. Elec Ry J 48:454 S 9 '16

Regulation

Problems of the industry. F. W. Coen. Elec Ry J 48:1109-10 N 25 '16

Regulation of public utilities. L. A. Busbey. W Soc E J 21:33-51 Ja '16; Same cond.

Elec Ry J 46:1081-4 N 27 '15; Discussion.

W Soc E J 21:51-4 Ja '16

See also Street railroad law; Street railroads—Franchises; Street railroads—Public relations

Rolling stock

See Street cars

Routeing

Rerouteing a traffic of nine cars a minute. Newark, N. J. H. C. Donecker. il diags map

Elec Ry J 48:172-9 J1 29 '16

Safety devices and measures

Columbus safety poster. Elec Ry J 47:853 My 6 '16

Conferences and commission rulings following Boston drawbridge accident. diags Elec Ry J 48:1102-6 N 25 '16

Co-operating with owners and drivers of motor vehicles. J. W. Browne. Elec Ry J 48:348-9 Ag 26 '16

Safety a real economy in Columbus. Elec Ry J 47:772-6 Ap 22 '16

Safety first in Seattle. G. Carson. il Elec Ry J 47:70-4 Ja 8 '16

Safety work in electric railway operation; results in Columbus, Ohio. H. W. Clapp. Elec Ry J 48:1110-11 N 25 '16

Safety work with the public. H. B. Coffin. Elec Ry J 48:308-9 Ag 19 '16

Schedules

Development of schedule makers. H. C. Donecker. Elec Ry J 48:795-7 O 14 '16

Double routed cars of the Chattanooga railway and light co. Elec Ry J 48:357 Ag 26 '16

Express cars in city service. W. S. Hamilton. Elec Ry J 47:219 Ja 29 '16

See also Street railroads—Service; Street railroads—Stops

Service

Increasing capacity of urban systems. M. C. Brush. Elec Ry J 47:263-5 F 5 '16

Rush-hour traffic. P. T. Reilly. Elec Ry J 47:952-3 My 20 '16

Saturday evening post answered. J. A. Beeler. Elec Ry J 47:353-4 F 19 '16

Saturday evening post editorial; criticism. W. T. Waters. Elec Ry J 47:502 Mr 11 '16

See also Street railroads—Schedules

Shelter stations

Attractive waiting stations. il Elec Ry J 47:997 My 27 '16

Shops

See Electric railroads—Shops

Snow removal

Snow-fighting apparatus. H. Bates. Elec Ry J 47:162-3 Ja 22 '16

Stations

See Street railroads—Terminals

Stops

Economy of higher speeds. B. F. Wood. Elec Ry J 47:13-15 Ja 1 '16

Factors affecting duration of stop. D. D. Ewing. Elec Ry J 47:768-70 Ap 22 '16

Growth of the skip-stop idea. Elec Ry J 47:8 Ja 1 '16

Near-side stop. J. J. Reynolds. Elec Ry J 48:872-3; Discussion. S. B. Hare. 873-4 O 21 '16

Near-side stop. W. C. Harrington. Elec Ry J 47:169 Ja 22 '16

Skip stop denied in Milwaukee. Elec Ry J 46:1144 D 4 '15

Skip stop in Cleveland. P. E. Wilson. Elec Ry J 47:15-17 Ja 1 '16

Skip stop in street railway operation. Ry R 59:282-3 Ag 26 '16

Skip-stops and schedule speed. J. V. Sullivan. Elec Ry J 47:18-19 Ja 1 '16

Skip stops for rush-hour service. E. E. Strong. Elec Ry J 47:17-18 Ja 1 '16

Skip stops held up in St. Louis. Elec Ry J 46:1254-5 D 25 '15

Street railroads—Continued**Terminals**

- Boston profits by elevated railway station improvements. il diag plans Elec Ry J 48:253-63 Ag 12 '16
- Dallas railway completes seven-track interurban terminal. E. T. Moore. il plans Elec Ry J 48:524-7 S 23 '16
- Newark \$6,000,000 terminal project an accomplished fact. il Elec Ry J 47:817 Ap 29 '16
- Rerouting a traffic of nine cars a minute, Newark, N. J. H. C. Donecker. il diags map Elec Ry J 48:172-9 JI 29 '16
- Saratoga terminal completed. il plan Elec Ry J 47:854-5 My 6 '16
- Signaling in the public service terminal. J. W. Brown. il Elec Ry J 47:890-4 My 13 '16

Track

- Automatic track switch in Rochester. C. L. Cadle. il Elec Ry J 47:739 Ap 15 '16
- Bridge-track repairs, Sixth street bridge, Pittsburgh. diags Eng N 75:612 Mr 30 '16
- Broken track stringers in bascule bridge lead to proposed new floor design. F. H. Avery. il diags Eng Rec 73:14-16 Ja 1 '16
- Concrete and asphalt mixing plant saves its cost in one year. G. H. Binkley. il diags Elec Ry J 47:728-31 Ap 15 '16
- Concreting track in Fort Smith, Ark. il Elec Ry J 48:111-12 JI 15 '16
- Curved heads for girder rails in Brooklyn. R. C. Cram. il diags Elec Ry J 45:1246-51 D 25 '15
- Electric railway track construction in paved streets. T. W. Blinn. il diags Elec Ry J 47:371-2 F 19 '16
- Electric welded special work and joints at Portland, Ore. il Elec Ry J 46:1268 D 25 '15
- Estimating cost of track construction on a unit-time basis. C. H. Fuller. Elec Ry J 47:80-4 Ja 8 '16
- Experience with bolted flange-bearings in Kansas City, Mo. A. E. Harvey. il diags Elec Ry J 47:1050-1 Je 3 '16
- Home-made frogs. C. Benham, jr. il Elec Ry J 48:407-8 S 2 '16
- Improved yokes for conduit railway. C. S. Kimball. diags Elec Ry J 48:501 S 16 '16
- Laying a monolithic brick pavement in car track. diag Eng N 75:77-8 Ja 13 '16
- Methods of handling track work in Kansas City; with cost tables. il diags Elec Ry J 48:430-6 S 9 '16
- Observations of a traveling track specialist. A. Swartz. Elec Ry J 48:717-18 O 7 '16
- Paving along street railroad tracks. diags Munic J 40:609-11 My 4 '16
- Paving street railway tracks. R. F. Palmblade. Elec Ry J 47:304-5 F 12 '16
- Pneumatic machines reduce tamping gangs from six to two. H. L. Hicks. il Elec Ry J 48:533-5 S 23 '16
- Practice of Peoria Ry. co., Peoria, Ill., for paving street railway tracks. R. F. Palmblade. Eng & Contr 45:503-4 My 31 '16
- Problems in rails and special work. Elec Ry J 47:4 Ja 1 '16
- Proposed Milwaukee track standards. diags Elec Ry J 48:198 JI 29 '16
- Rail corrugation studied in Chicago. il diags Elec Ry J 48:1012-16 N 11 '16
- Rail joints. R. H. Findley. Elec Ry J 47:896-9 My 13 '16
- Refinements mark 1915 track development. Elec Ry J 47:2-3 Ja 1 '16
- Sioux City, Iowa, concrete pavements. il diags Eng N 76:167-8 JI 27 '16
- Sioux City tracks paved with concrete. il Elec Ry J 46:1132-3 D 4 '15
- Special track layouts made interchangeable. E. S. Watters. diag Elec Ry J 47:864-5 My 6 '16
- Standard layout designs of the Brooklyn rapid transit system. M. Bernard. diags Elec Ry J 48:148-50 JI 22 '16
- Street railway paving. W. M. Archibald. Elec Ry J 47:396 My 27 '16
- Street railway track construction in paved streets. R. K. Compton. Good Roads n s 11:113-15 Mr 4 '16
- Street railway track laying. Munic Eng 51:149 O '16

- Street railways' duties as to repair of streets. J. Simpson. Munic J 40:834-5 Je 15 '16
- Tilting rails on steel ties provides full wheel and rail contact. il Elec Ry J 48:1029 N 11 '16
- Track maintenance in streets. R. C. Cram. Elec Ry J 47:443-5 Mr 4 '16
- Track rehabilitation in Springfield, Ohio. C. G. Keen. il Elec Ry J 47:134-5 Ja 15 '16
- Unit track construction costs for thirty-one jobs. il Elec Ry J 47:559-62 Mr 18 '16
- See also Electric railroads—Track; Rails; Street railroads—Switches, frogs, etc.

Traffic

- Chicago loop traffic analyzed. Elec Ry J 47:171 Ja 22 '16
- Chicago's congested traffic. Elec Ry J 48:183-8, 218-21, 271-4 JI 29-Ag 12 '16
- Determining the actual length of ride. D. J. McGrath. Elec Ry J 47:595-8 Mr 25 '16
- How city people travel; analysis of traffic conditions in Denver, Colorado. R. W. Toll. maps Gen Elec R 19:60-7 Ja '16
- Traffic studies in Lafayette, Ind. D. D. Ewing. Elec Ry J 47:355-8 F 19 '16

Transfers

- Front-end collector's transfer. il Elec Ry J 48:57 JI 8 '16
- New San Diego transfers. il Elec Ry J 47:308 F 12 '16
- Printing 2,000,000 transfers a day; printing plant of the Brooklyn rapid transit system. il Elec Ry J 48:216-17 Ag 5 '16

Valuation

- Jacksonville, Ill., valuation brief. Elec Ry J 47:731-2 Ap 15 '16
- Massachusetts public service commission doubts accuracy of estimated original cost. Eng Rec 74:342-3 S 16 '16
- Minneapolis valuation figures presented. Elec Ry J 48:902 O 21 '16

Street railroads, Municipal

- War checks the growth of Calgary street railway. il plan map Elec Ry J 48:962-4 N 4 '16

- Street railway association, Pennsylvania. See Pennsylvania street railway association

Street signs

- Illuminated street signs in the curb. il Elec W 66:1387 D 18 '15
- Mathews interlocking street sign device. il Munic J 40:701-2 My 18 '16
- Simple post for street-name signs. R. S. Wallis. il diags Munic J 41:11 JI 6 '16
- Street-name signs. R. S. Wallis. il diags Iowa state college Bul 20:1-47 '16; Abstract. Eng N 76:16-17 JI 6 '16; Abstract. Munic J 41:93-7 JI 27 '16

Street sprinkling

- Electric vehicles for street flushing. il Elec R & W Elec'n 67:1046+ D 4 '15
- Sprinkler truck operations at Portland, Oregon. il Eng & Contr 45:497 My 31 '16
- Street sprinkling in Rochester, Minn.; with cost data. J. C. Utton. Eng & Contr 46:106 Ag 2 '16; Abstract. Eng N 75:407 Mr 2 '16

See also Street oiling

Street traffic

- Automobile and the city plan. N. P. Lewis. Eng Rec 73:773-4 Je 10 '16; Same cond. Eng N 75:1162-3 Je 22 '16
- Busiest city thoroughfare? Eng N 76:905 N 9 '16
- Busiest street intersection in the world, New York city at Fifth Ave. and 42nd St. Eng N 75:497 Mr 16 '16
- How city people travel; analysis of traffic conditions in Denver, Colorado. R. W. Toll. maps Gen Elec R 19:54-67 Ja '16
- Increase in motor traffic. Munic Eng 49:209 D '15
- Motor vehicle accidents and traffic regulation. H. G. Winsor. Elec Ry J 48:874-6; Discussion. A. D. Brown. 876-7 O 21 '16
- Plan to build truck roads through Central Park, New York city. Good Roads n s 12:96 Ag 12 '16
- Regulating motor-vehicle traffic. Elec Ry J 48:348-51 Ag 26 '16

Street traffic—Continued

- regulation of weight, size and speed of vehicles has become an all-important problem. H. C. Hutchins. *il Eng Rec* 73:790-2 *Je* 17 '16
- Scheme for graduation of street traffic. Eng N 75:733 *Ap* 20 '16
- Standard forms prepared for traffic-count data. Eng Rec 74:621 *N* 13 '16
- Street traffic regulation in Boston. W. B. Conant. *Munic J* 40:199 *F* 10 '16
- Systems of traffic control. H. C. Hutchins. *il plans Munic J* 40:715-18 *My* 25 '16
- Traffic-census methods and some results; St. Louis. W. Holden. Eng N 76:832-4 *N* 2 '16
- Traffic records in New York. *Munic J* 39:947 *D* 23 '15
- Traffic studies in Lafayette, Ind. D. D. Ewing. *Elec Ry J* 47:355-8 *F* 19 '16
- See also* Automobile laws and regulations; Motor trucks—Regulation; Street railroads—Traffic; Vehicle licenses

Bibliography

- List of references on traffic control in cities. H. H. B. Meyer. *Special Libraries* 6:163-70 *D* '15

Streets

- City aid plan of street improvement and its effect on health and economy. Eng & Contr 46:375-6 *N* 1 '16
- City planning on an exceptionally large scale is meeting with public approval at Philadelphia. *il plans Eng Rec* 73:344-8 *Mr* 11 '16
- Cost of cutting grass on boulevards during July and August. H. R. Ferriss. Eng & Contr 45:213 *Mr* 1 '16
- Cost of trimming grass along walks and curbs in boulevards. H. R. Ferriss. Eng & Contr 45:237-8 *Mr* 8 '16
- Elevation of low-level streets on Pittsburgh river front. C. M. Reppert. *il diags Eng N* 75:154-7 *Ja* 27 '16
- Fees for use of public streets. *Munic J* 41:31-2 *JI* 13 '16
- Grades and street intersections. J. Wilson. *plan Munic J* 41:541-2 *N* 2 '16
- Layout of street intersections on steep grades. *plan Eng N* 75:591 *Mr* 30 '16
- Motor trucks and street grades. *Munic J* 40:796-7 *Je* 8 '16
- Pittsburgh's streets. *il chart Good Roads n s* 11:47-54 *F* 5 '16
- Practical street construction. *il diags Munic J* 40:1-7, 40-3, 74-7, 105-8, 201-2, 237-40, 269-71, 327-30, 365-8, 399-402, 433-6, 510-12, 545-8, 580-2, 613-16, 651-2, 685-8, 719-22, 861-3, 894-5; 41:4-5, 35-6, 70-1, 98-9 *Ja* 6-27, *F* 10-24, *Mr* 9-30, *Ap* 13-*My* 25, *Je* 22-*JI* 27 '16
- Reducing hillside street grade from 29 to 16 per cent. *plan Eng N* 75:12-13 *Ja* 6 '16
- Regrading a tunnel street. C. L. Edholm. *il Munic J* 40:240 *F* 17 '16
- Street embellishments. A. A. Stoughton. *il plan Am Inst Arch J* 4:19-23 *Ja* '16
- Street-intersection problem. *plan Eng N* 76:801 *O* 26 '16
- Street planning in Newark. *il diags plans Munic J* 40:297-301 *Mr* 2 '16
- Streets and the city beautiful. D. T. Pierce. *il Munic Eng* 50:187-8 *My* '16
- Visualizing street grades in Portland, Ore. R. G. McMullen. *il Munic J* 41:486 *O* 19 '16
- See also* City planning; Grading; Pavements; Roads; Sidewalks; Snow removal; Street cleaning; Street lighting; Street openings; Street traffic; Subways (streets)

Maintenance and repair

- Care of unpaved streets. W. H. Horne. *Munic J* 40:336 *Mr* 9 '16
- Fundamental necessities in the maintenance and upkeep of streets and roads. W. P. Blair. *Good Roads n s* 12:201 *N* 4 '16
- Street railways' duties as to repair of streets. J. Simpson. *Munic J* 40:834-5 *Je* 15 '16

Obstructions

- Overhead wires in streets. A. L. Bostwick. *Munic J* 40:793-4 *Je* 8 '16
- Pavement obstructions. *il Munic J* 41:313-16 *S* 14 '16
- Poles and wires in highways. J. Simpson. *Munic J* 41:445-6 *O* 12 '16

Signs over sidewalks in Philadelphia, Pennsylvania. *Good Roads n s* 12:112 *S* 2 '16

Widening

- City planning on an exceptionally large scale is meeting with public approval at Philadelphia. *il plans Eng Rec* 73:346-7 *Mr* 11 '16
- Cost of cutting edge of concrete walk. H. R. Ferriss. Eng & Contr 46:291 *O* 4 '16
- Practical street construction. *il Munic J* 40:327-30, 365-8, 399-402, 433-6, 510-12, 545-8, 580-2, 613-16, *Mr* 9-30, *Ap* 13-*My* 4 '16
- Street widening in San Antonio. E. A. Kingsley. *il Munic J* 40:263-4 *F* 24 '16
- Widening a Columbus street. H. Maetzel. *Munic J* 40:831-2 *Je* 15 '16

Strength of materials

- Correlation between tensile and bending tests of cast iron; abstract. W. H. Herschel. *Am Soc M E J* 38:344 *Ap* '16
- Elasticity and strength of stoneware and porcelain. J. E. Boyd. *il Am Soc M E J* 38:222-6; Discussion. 38:227-9 *Mr* '16
- Failure of structural brasses. P. D. Merica and R. W. Woodward. *Metal Ind n s* 13:459-61, 495-8 *N-D* '15
- Investigations conducted on materials used in aeroplane construction; abstract. J. S. Macgregor. *Am Soc M E J* 38:1033-4 *D* '16
- See also* Architecture; Building materials; Cast iron—Testing; Elastic limit; Girders; Graphic statics; Steel—Testing; Strains and stresses; Trusses; Wood—Testing

Stress (word)

- Stress or strain. H. B. Seaman. Eng N 75:284 *F* 10 '16

Stresses. See Strains and stresses**Strikes**

- Attempted tyranny of labor unions. L. M. Sheridan. Eng & Min J 102:910 *N* 18 '16
- Attempted tyranny of labor unions. W. Culliver. Eng & Min J 102:796 *O* 28 '16
- Clifton-Morenci strike. Eng & Min J 101:194 *Ja* 22 '16
- Commissioner Clements advocates a law to prevent railroad strikes. *Ry R* 59:724-5 *N* 25 '16
- Employees of New York railways repudiate peace pact. *Elec Ry J* 48:484-9 *S* 16 '16
- Engineer's plan to prevent strikes on public utilities. Eng N 76:757-8 *O* 19 '16
- General tie-up threatened in New York. *Elec Ry J* 48:229-34 *Ag* 5 '16
- How European roads deal with strikes. J. B. Fox. *Elec Ry J* 48:535-6 *S* 23 '16
- Interborough rapid transit co. strike in New York. *Elec Ry J* 48:449-52 *S* 9 '16
- Labor disputes and public utilities; meeting of Academy of political science. *Elec Ry J* 48:1106-9 *N* 25 '16
- Labor troubles at Pittsburgh and Bridgeport. E. Kneeland; E. K. Nicholson. *Iron Age* 98:1174-5 *N* 23 '16
- New York strikes well in hand. *Elec Ry J* 48:546 *S* 23 '16
- Prevention of railroad strikes. H. R. Towne. *Ry Age* 61:545-6 *S* 29 '16; Same. *Elec W* 68:653-4 *S* 30 '16; Same cond. *Ry R* 59:482-3 *O* 7 '16; Abstract. Eng Rec 74:473 *O* 14 '16
- Strikes in Westchester county and four New York boroughs settled on compromise basis. *Elec Ry J* 48:275-8 *Ag* 12 '16
- Union men quit in Indianapolis. *Elec Ry J* 48:1073 *N* 18 '16

Strontium

- Barytes and strontium in 1915. J. M. Hill. Eng & Min J 102:938 *N* 25 '16
- Modification of McCrudden's method for calcium, for the estimation of calcium and strontium in the presence of phosphoric acid and a small amount of iron. O. B. Winter. *J Ind & Eng Chem* 8:603-4 *JI* '16
- Strontium in 1915. *J Fr Inst* 181:727-8 *My* '16

Structural engineers

- Comment on a society of structural engineers. Eng & Contr 46:168-9 *Ag* 23 '16

Proposed American society of structural engineers. Eng & Contr 46:73-4 *JI* 26 '16

Structural painting. See Painting, Structural**Stucco**

- Attractive house of stucco on frame built for an architect at Moline, Ill. *il plans Concrete Cem* 8:13, 13 *Ja* '16

Stucco—Continued

- Building the stucco-coated house. W. Webb. *il Bldg Age* 38:67-8 F '16
 Cracking and discoloration in sand-finished stucco surfaces. Concrete 8:229-30 My '16
 Prevention of joint marks in stucco over block and tile. Concrete 8:136 Mr '16
 Roman stucco work. W. J. H. Hough. *diag Am Inst Arch J* 4:73-6 F '16
 Stucco in building construction. E. Parker. *il Bldg Age* 38:65-8 Ap '16
 Use of stucco as a means of modernizing old buildings. *il Concrete* 8:266-8 Je '16

Students. See Colleges and universities

Study

- Economy in study. G. V. N. Dearborn. *Sci Am* S 81:242-3, 274-5, 330-1, 374-5, 410-11 Ap 15, 29, My 20, Je 10, 24 '16

See also Scientific research; also subdivision Study and teaching under names of subjects, e.g. Plumbing—Study and teaching, Printing—Study and teaching

Stumps. See Clearing of land

Stuttering. See Stammering

Subdivision of ships. See Naval architecture—Subdivisions

Submarine boats

- Argument for big submarines. *Sci Am* 115:168 Ag 19 '16
 Captured German mine-laying submarine. *il Sci Am* 115:177, 403 Ag 19, N 4 '16
 German submarines C 5 and Deutschland. *il Engineer* 122:74 JI 28 '16
 German submersible blockade runner—Deutschland. *il plan Sci Am* 115:82-3 JI 22 '16

Modern submarines in war and peace. S. Lake. *il diags plan Int Marine Eng* 20:286-94, 349-55, 399-404, 450-6, 502-6, 559-62; 21:29-30, 75-8, 201-5 JI '15-F, Ap '16; Excerpt. *Eng M* 50:104-7 O '15

Need of an efficient mother ship for the submarines of the United States navy. R. G. Skerrett. *il diags Int Marine Eng* 21:234-8 My '16

Peril of the submarine. *Sci Am* 114:120 Ja 29 '16

Periscope of the submarine. *Sci Am* S 81:135 F 26 '16

Present condition of the submarine. M. A. Laubeuf. *Sci Am* S 81:112 F 12 '16

Problems of the submarine; abstract. *J Fr Inst* 182:708-9 N '16

Raising the submarine F-4. J. A. Furer. *il plan Eng N* 74:880-4 N 4 '15; Abstract. *Eng M* 50:614-15 Ja '16

Rapid-fire revolver principle applied to the submarine torpedo tube. E. Cerio. *il diags Sci Am* 114:395+ Ap 15 '16

Resistance of submarines and airships. *Engineer* 122:237-8 S 15 '16

Salvage of the submarine. J. A. Furer. *il Sci Am* 113:336-7+ O 16 '15; Abstract. *Int Marine Eng* 21:37-8 Ja '16

Sea-going submarines and their torpedo armament. *Sci Am* 114:396 Ap 15 '16

Stored energy of the submarine. *il Sci Am* 114:178 F 12 '16

Submarine of to-day and to-morrow. L. Y. Spear. *Int Marine Eng* 20:549 D '15

Submarine or battleship—which? *il Sci Am* 113:540+ D 18 '15

Submarine warfare; early history of underwater craft and their recent uses in naval activities. *il Sci Am* 114:142-3 F 5 '16

Submarines in the merchant service. *Sci Am* 115:76 JI 22 '16

Super-submarine. *Engineer* 121:239-40 Mr 17 '16

When Fulton suggested submarine warfare. *il Sci Am* 115:158-9 F 18 '16

See also Submarine warfare

Testing

Submergence test of a submarine. *Int Marine Eng* 21:176 Ap '16

Submarine cables. See Cables, Submarine

Submarine diving. See Diving, Submarine

Submarine mines. See Mines, Submarine

Submarine nets

Submarine nets for the navy. *Sci Am* 114:464 My 6 '16

Submarine signals

Signaling to submarines. *Elec W* 68:553-4 S 16 '16

Submarine warfare

Combination helmet and suit used in escaping from disabled submarines. *il Sci Am* 114:642 Je 17 '16

Early history of underwater craft and their recent uses in naval activities. *il Sci Am* 114:142-3 F 5 '16

Submarine "curtain of fire." *Sci Am* 114:94 Ja 22 '16

Submarine question. R. L. Gordon. *Sci Am* 114:197 F 19 '16

Sub-surface blockade running. *il diag Sci Am* 115:151+ Ag 12 '16

Torpedo screen for ships under way. J. B. Flowers. *il Sci Am* 115:406+ N 4 '16

Two years of submarine warfare. *Engineer* 122:342-3, 384-5 O 20, N 3 '16

See also Mines, Submarine; Submarine boats; Submarine nets

Subsidies. See Motor truck subsidies; Ship subsidies

Substations. See Electric plants (substations); Electric railroads—Substations

Substitution (chemistry)

Evidence for the electronic formula of benzene and the substitution rule. H. S. Fry. *Am Chem Soc J* 38:1323-7 JI '16

Subsurface structures. See Subways (conduits)

Subways

Difficult underpinning along William street subway. N. Y. E. A. Prentiss, jr. *il diags Eng N* 75:681-5 Ap 13 '16

Distributing concrete on subway work. H. L. Quigley. *il diag Concrete* 8:60 F '16

Diverse methods feature New York subway concreting. R. Ridgway. *il Eng Rec* 73:280-2 F 26 '16

Four street shaft plants to handle 300,000 yards of excavation in twelve months. *il diags Eng Rec* 73:152-3 Ja 29 '16

Harlem river four-track subway tunnel. O. Hoff. *il diags map Eng Soc W Pa* 31:517-37 O '15; Same. *Eng & Contr* 45:520-2, 545-7 Je 7-14 '15; Discussion. *Eng Soc W Pa* 31:571-83 O '15

New trench-excavation system. *il diags Eng N* 75:1086-8 Je 8 '16

Pneumatic concrete mixing and placing, New York subway. A. E. Comstock. *il Eng N* 75:496-7 Mr 16 '16

Portable hoppers on street, steam shovel underground. *il Eng Rec* 74:149-50 JI 29 '16

Progress on New York subways. *Ry R* 59:423-4 S 23 '16

Progress on the Boston subway. *il plan Ry R* 58:393-400 Mr 18 '16

Rapid transit work in 1915, New York city. D. A. Sealey. *il maps Eng N* 75:842-9 My 4 '16

Remarkable underpinning work. *il Sci Am* 115:62 JI 15 '16

Return feeder system of the Interborough. I. W. Gross. *Elec Ry J* 47:160-1 Ja 22 '16

Subway columns and girders designed to support future high office building. *diags Eng Rec* 74:113-14 JI 22 '16

Subway steelwork kept 20 ft. behind heading. G. D. Fried. *diags Eng N* 76:949-50 N 16 '16

Unballasted track gives 50 per cent lower maintenance cost. W. S. Twining. *il diag Elec Ry J* 48:481-3 S 16 '16; Abstract. *Eng Rec* 74:471 O 14 '16

Use of rectangular sections solves many problems in restoring gas mains during subway construction. C. N. Green. *il Am Gas Light J* 105:259-60 O 23 '16

Waterproofing practice in the New York subways. J. Rosenzweig. *il Ry R* 58:363-6 Mr 11 '16

William-street section of the New York subway. *il diags Engineer* 122:111-13 Ag 11 '16

See also Tunnels and tunneling

Ventilation

New York subway ventilation plans investigated. *Eng N* 75:531-2 Mr 16 '16

Subway air exceeds health board's standards. *Eng Rec* 73:382-3 Mr 18 '16

Subways (conduits)

- Chicago's public-utility subway. diags Eng N 74:157 D 16 '15
 Pipe galleries and the location of mains. C. B. Burdick. diags Am Water Works Assn J 3: 713-23 S '16
 Seattle utilities pay city for subsurface maps. A. L. Valentine. maps Eng Rec 72:792 D 25 '15
 Tunnels for electric cables. Eng N 76:633 O 5 '16
 Various types of sub-surface piping. H. L. Alt. diags Dom Eng 74:34-6 Ja 8 '16

Subways (streets)

- Grade-crossing elimination at Memphis bridge terminals. J. H. Weatherford. il diags map Eng N 76:160-1 Jl 27 '16
 Grade-crossing elimination in Camden, N. J. il map Ry Age 61:69-72 Jl 14 '16
 Lowering Broadway tunnel in Los Angeles. R. W. Stewart. il diags Eng N 75:414-15 Mr 2 '16
 Pedestrian subway in quicksand. C. V. Chamberlin. diag Ry Age 60:900 Ap 21 '16

Success

- Character as a factor in business success. Metal Work 85:125+ Ja 21 '16
 Is the commonest cause of failure lack of ambition? Eng & Contr 46:440 N 22 '16
 Lectures for sheet metal contractors. Metal Work 85:304-6, 345-6 Mr 3-10 '16
 Relation of personal habits and conduct to success in commercial work. R. B. Day. Sibley J 31:11-13 O '16

See also Business; Leadership

Sucrose. See Sugar**Sudan, Egyptian**

- Early history of the Anglo-Egyptian Soudan. C. G. Seligman. Sci Am S 81:270-2 Ap 22 '16

Sudbury, Ontario

- Diamond drilling at Sudbury. L. A. Parsons. Eng & Min J 102:381-2 Ag 26 '16
 Geological relations of Sudbury nickel ores. C. W. Knight. il Eng & Min J 102:554-5 S 23 '16
 Geological relations of the Sudbury nickel ores. A. P. Coleman. Eng & Min J 102:104-5 Jl 8 '16
 Origin of Sudbury nickel-copper deposits. C. V. Corless. Eng & Min J 102:517-18 S 16 '16
 Origin of Sudbury nickel-copper deposits. C. W. Knight. map Eng & Min J 101:811-12 My 6 '16

Suffocating gases. See Gases, Asphyxiating**Sugar**

- Determination of sucrose in condensed milk. G. W. Knight and G. Formanek. J Ind & Eng Chem 8:28-31 Ja '16
 Effect of sodium chloride upon the action of invertase. H. A. Fales and J. M. Nelson. Am Chem Soc J 37:2769-86 D '15
 Estimation of sugar in meat products, particularly extracts. W. B. Smith. J Ind & Eng Chem 8:1024-7 N '16
 Occurrence of sucrose in grapes of American origin. H. C. Gore. J Ind & Eng Chem 8:333-4 Ap '16
 Occurrence of sucrose in relatively large amounts in a new seedling grape. W. B. Alwood and J. R. Eoff, jr. J Ind & Eng Chem 8:334-5 Ap '16
 Osmotic pressure of sucrose solutions at 30°. J. C. W. Frazer and R. T. Myrick. diags Am Chem Soc J 38:1907-22 O '16
 Polariscopic determination of sugar in condensed milk. R. O. Brooks. J Ind & Eng Chem 8:1022-4 N '16

See also Beets and beet sugar; Glucose; Maple sugar; Sorghum; Sugar industry and trade; Sugars; Syrups

Analysis

- Gravimetric determination of reducing sugars in cane products. G. P. Meade and J. B. Harris. J Ind & Eng Chem 8:504-9 Je '16

Manufacture

- Capacity and economy of multiple evaporators; abstracts. E. W. Kerr. diags Met & Chem Eng 14:603-8 My 15 '16; Am Soc M E J 38:539-48 Jl '16; Discussion. Am Soc M E J 38:548-51 Jl '16

- Rapid pycnometric method for gravity solids in cane-sugar factories. H. S. Walker. J Ind & Eng Chem 8:262-4 Mr '16
 Study of the syrup precipitate in white sugar manufacture. C. E. Coates and L. C. Slater. J Ind & Eng Chem 8:789-92 S '16
 Theory of multiple evaporators. P. H. Parr. Engineer 121:146-7 F 18 '16

Sugar beet. See Beets and beet sugar**Sugar industry and trade**

- Accounting problems in the cane sugar industry. J. E. Keyes. J Account 22:35-42 Jl '16

Sugars

- Acetyl derivatives of the sugars. C. S. Hudson. J Ind & Eng Chem 8:380-2 Ap '16
 Numerical relations among the rotatory powers of the compound sugars. C. S. Hudson. Am Chem Soc J 38:1566-75 Ag '16
 Preparation of bromoacetylglucose and certain other bromoacetyl sugars. J. K. Dale. Am Chem Soc J 38:2187-8 O '16
See also Fructose; Galactan; Sugar

Suggestion boxes

- Successful shop suggestion system. H. A. Russell. il Iron Age 98:983-5 N 2 '16

Sugi

- Essential oil of sugi (*Cryptomeria japonica*) leaves. S. Uchida. Am Chem Soc J 38:687-99 Mr '16

Sulfur. See Sulphur**Sullivan, Louis Henry, 1856-**

- Architecture of democracy; three recent examples from the work of Louis H. Sullivan. A. N. Rebori. il plans Arch Rec 39:436-65 My '16

Sulphates

- Solubilities of the sulfates of barium, strontium, calcium and lead in ammonium acetate solutions at 25° and a criticism of the present methods for the separation of these substances by means of ammonium acetate solutions. J. W. Marden. Am Chem Soc J 38: 310-16 F '16

Sulphides

- Flotation of oxidized ores; abstracts. O. C. Ralston and G. L. Allen. Met & Chem Eng 15:153-5 Ag 1 '16; Eng & Min J 102:169-70 Jl 22 '16
 Paragenesis of certain sulphide intergrowths. W. L. Whitehead. il Econ Geol 11:1-13 Ja '16
 Pyritic copper deposits of Kyshtim, Russia. A. W. Stickney. bibliog pls Econ Geol 10: 593-633 N '15

See also Chalcocite

Sulphidizing. See Sulphides**Sulphite-solution plant. See Paper making and trade****Sulphur**

- Effect of aeration and watering out on the sulphur content of coke. J. R. Campbell. Am Inst Min E Bul 109:177-80 Ja '16; Same (Sulphur elimination in coking processes). Iron Age 97:374-5 F 10 '16; Same cond. Am Gas Light J 104:124-5 F 21 '16
 Effect of sulphur in cast iron. Iron Age 96: 1551-2 D 30 '15
 Effect of sulphur in rivet steel. J. S. Unger. il Power 44:144-6 Jl 25 '16
 Effect of sulphur in steel. W. Hirst. Power 44:287 Ag 22 '16
 Effect of sulphur on low-carbon steel. C. R. Hayward. diag Am Inst Min E Bul 118:1841-50 O '16; Same cond. Iron Age 98:756-8 O 5 '16; Same cond. Iron Tr R 59:735-7 O 12 '16
 Figuring cupola charges. W. A. Ballou. Foundry 44:118 Mr '16
 Frasca sulphur-mining patent. Eng & Min J 101:439 Mr 4 '16
 High and low sulphur in basic steel. J. S. Unger. il Iron Age 97:146-50 Ja 13 '16; Same cond. Horseless Age 37:69-70 Ja 15 '16; Same cond. Eng N 75:363-5 F 24 '16; Same cond. Eng & Min J 101:595-7 Ap 1 '16
 High sulphur in steel. M. H. Schmidt. Iron Age 97:383 F 10 '16; Same. Iron Tr R 58:646 Mr 23 '16
 Rapid control method for the determination of sulfur in pyrites cinder. H. C. Moore. J Ind & Eng Chem 8:26-8 Ja '16
 Reduction of sulphur from sulphur gases; patent by W. F. Lamoreaux. diag Met & Chem Eng 15:360 S 15 '16

Sulphur—Continued

- Removal of sulphur from spent oxide. E. J. Murphy. *Am Gas Light J* 105:278 O 30 '16;
Same. *Gas Age* 38:522 N 15 '16
Role of sulphur in pyritic smelting. R. C. Sticht. *Met & Chem Eng* 14:223-4 F 15 '16
Sicilian sulphur production. Eng & Min J 102:231 JI 29 '16
Sulphur content in steel. R. E. Newcomb. *Power* 44:393 S 12 '16
Sulphur industry in 1915. Eng & Min J 101:55 Ja 8 '16

See also Lime-sulphur solutions

Sulphur dioxide

- Determination of sulfur dioxide and sulfur trioxide in flue gases. R. J. Nestell and E. Anderson. *il J Ind & Eng Chem* 8:258-60 Mr '16
Report of the Selby smelter commission; with accompanying papers. *il* diag charts maps U S Bur Mines Bul 98:1-528 '15; Abstract. *J Ind & Eng Chem* 7:41-5 Ja '15; Abstract. Eng & Min J 98:1075-8 D 19 '14
Vapor pressures of sulfur dioxide and nitrous oxide at temperatures below their normal boiling points. G. A. Burrell and I. W. Robertson. *Am Chem Soc J* 37:2691-4 D '15

Bibliography

- Bibliography on the effect of sulphur dioxide on vegetation and animal life. U S Bur Mines Bul 98:503-20 '15

Sulphur trioxide

- Determination of sulfur dioxide and sulfur trioxide in flue gases. R. J. Nestell and E. Anderson. *il J Ind & Eng Chem* 8:258-60 Mr '16
Determination of sulfuric anhydrid. E. G. Pierce. *il Met & Chem Eng* 15:353-4 S 15 '16

Sulphuric acid

- American steel & wire company's zinc works. Donora, Pa. *il plan Iron Age* 97:82-6 Ja 6 '16
Contact sulphuric-acid patents. Eng & Min J 101:209 Ja 29 '16
Density of aqueous solutions of copper sulfate and sulfuric acid. H. D. Holler and E. L. Peffer. *Am Chem Soc J* 38:1021-9 My '16
Donora zinc works. W. R. Ingalls. *il plan Eng & Min J* 102:650, 654 O 7 '16
Impurities in sulphuric acid from blende roasting. A. Hoffmann. Eng & Min J 102:86 JI 8 '16
New method of manufacturing sulphuric acid. Eng & Min J 101:10 Ja 1 '16
New sulphuric acid plant at Donora, Pa. T. N. Harris. *il plan Met & Chem Eng* 15:313-18 S 15 '16
Properties of mixed liquids; sulfuric acid-water mixtures. J. L. R. Morgan and C. E. Davis. *Am Chem Soc J* 38:555-68 Mr '16
Roasting and acid plants of Braden copper co.; abstract. J. B. Wise. flow sheet Met & Chem Eng 15:101-2 JI 15 '16
Roasting of blende. M. de Lummen. Eng & Min J 101:1024 Je 10 '16
Sulphuric acid industry in 1915. *Am Gas Light J* 105:3 JI 3 '16
Sulphuric-acid supplies in France and England. Eng & Min J 100:997 D 18 '15

Sulphuric acid, Aromatic

- Hydrolysis of ethyl-sulfuric acid and the assay of aromatic sulfuric acid. U. S. P. W. B. D. Penniman and others. *diag J Ind & Eng Chem* 8:904-9 O '16

Sulphurous acid

- Solubility of leucite in sulfurous acid. J. Schroeder. *J Ind & Eng Chem* 8:779-80 S '16

Sumbul root

- Constituents of sumbul root. F. W. Heyl and M. C. Hart. *Am Chem Soc J* 38:432-46 F '16

Sun

- Modern views of the sun. J. S. Plaskett. *Sci Am S* 82:50-1, 74-5 JI 22-29 '16

See also Solar radiation

Sunday school rooms

- Arrangement of sliding partitions. E. J. G. Phillips. *il diag plan Bldg Age* 33:31-1 Je '16
Church planning in the United States. R. F. Bach. *plans Arch Rec* 40:223-43, 455-77, 529-40 S, N-D '16

Sunflowers

- Cultivation and utilization of sunflower, niger and safflower seed. *Sci Am S* 82:282 O 28 '16

Sunlight

- New way of converting light into electrical energy. T. W. Case. *diag Engineer* 122:154-5 Ag 18 '16
Prodigal sun; an instrument for showing the exact direction of the sun's rays. A. A. Shurtleff. *il diag Am Inst Arch J* 4:331-3 Ag '16
Prodigal sun; how his wanderings may be exhibited in connection with building plans. *il Sci Am* 115:461 N 18 '16
Sunlight a necessity for the maintenance of health. J. W. Kime. *Sci Am S* 81:295 My 6 '16

Sunny, Bernard Edward, 1856-

- Dinner given to president of the Central group of Bell telephone companies. *Gen Elec R* 19:652-9 JI '16

Sunshine. See Sunlight**Super-dreadnoughts. See Warships****Superheated steam**

- Economy of superheated steam. *Heat & Ven* 13:39-40 O '16
Effect of throttling of superheated steam. H. A. Everett. *Int Marine Eng* 21:512 N '16
High-pressure steam for superheating. R. L. Shipman. *Power* 42:892-3 D 28 '15
How to use superheated steam. C. L. Hubbard. *il Eng M* 51:208-16, 413-19 My-Je '16
Use of superheated steam in marine practice. H. B. Outley. *Power* 43:127-8 Ja 25 '16; Abstract. *Int Marine Eng* 20:548 D '15

Superheaters

- Design of superheaters. W. C. Strott. *Power* 44:199-200 Ag 8 '16
Economics of stoker, economizer and superheater. A. A. Potter and S. L. Simmering. *Elec W* 67:371-2 F 12 '16; Same. *Am Gas Light J* 104:235-6 Ap 10 '16
First fire-tube superheater in marine service in America. *il Ry Age* 60:476 Mr 17 '16
Successful installation of fire-tube superheater on a railroad tug. *il Int Marine Eng* 21:160-1 Mr '16
Superno superheater. *il Power* 44:131 JI 25 '16
See also Locomotives—Superheaters; Superheated steam

Surface combustion. See Combustion, Surface**Surface plates**

- Surface scraping and surface plates. B. T. Hawley. *diag Mach* 22:681 Ap '16

Surface tension. See Capillarity**Surgery**

- Locating bullets in human bodies. *il Sci Am S* 81:373 Je 10 '16
New method of repairing injured nerves. *Sci Am S* 82:195 S 23 '16
Preparation of surgical catgut. *Sci Am S* 82:76-7 JI 29 '16
Use of celluloid in plastic surgery. C. Higgins. *Sci Am S* 82:319 N 11 '16
Use of X-rays with intervals of red illumination. J. Boyer. *il Sci Am* 114:195 F 19 '16; Same cond. *J Fr Inst* 181:657-8 My '16
See also Antiseptics; Bandages and bandaging; Bloodletting; Surgery, Military; Surgical dressings; Surgical instruments; Wounds

Surgery, Military

- Grafting bone and skin in French hospitals. F. P. Mann. *Sci Am S* 81:35 Ja 15 '16
Modern science and war surgery; artificial sun baths and electric heating of the body. *il Sci Am S* 81:116 F 19 '16

See also Ambulances; Wounds

Surgical bandages. See Bandages and bandaging**Surgical dressings**

- Bog moss for surgical dressings. C. M. Maigne. *il Sci Am* 113:521 D 11 '15

Surgical instruments

- Electric probes; supplementing the X-ray in hunting for bullets in the human body. R. G. Skerrett. *il Sci Am* 114:621 Je 10 '16
Surgical scalpels with detachable blades. *il Sci Am* 114:359 Ap 1 '16

Survey, Snow. See Snow survey**Survey markers**

- Offset street monuments 10 feet from intersections. *diag Eng Rec* 73:139 Ja 29 '16

Surveying

- Car-mounted level and adding machine for precise leveling. *il Eng & Contr* 46:193 Ag 30 '16
- City surveying. J: McNeal, map *Munic J* 41: 32-5 JI 13 '16
- Cross-sectioning device on dam excavation. J: O. P. Coulling. *il diags Eng N* 75:422 Mr 2 '16
- East river tunnel surveys. C. M. Holland. *il diags Eng N* 76:655-7 O 5 '16
- Engineers' right-of-entry act. *Eng Rec* 74:118, 180 JI 22, Ag 5 '16
- Facing hazards for the sake of precision. R. G. Skerrett. *il Sci Am* 115:63+ JI 15 '16
- Form for calculation of solar observations. V. K. Jones. *Eng & Min J* 101:941 My 27 '16
- Ingenious special devices for tunnel surveys. *diags Eng N* 75:1141-2 Je 15 '16; Same. *Eng & Min J* 102:180-1 JI 22 '16
- Innovations in precise-leveling methods in coast survey. W: Bowie. *il Eng N* 76:74 JI 13 '16
- Land surveying in Texas. J. M. Howe. map *Eng N* 76:753-4 O 19 '16
- Land surveying in Texas. R. W. Creuzbaur. *Eng N* 76:954-5 N 16 '16
- Location survey methods for irrigation canals. *Eng N* 75:997-8 My 25 '16
- Loose-leaf methods applied to surveyors' notes. W: D. Sell. *Eng Rec* 74:229-30 Ag 19 '16
- Methods and cost of making surveys for sewers. A. M. Wolf. *Eng & Contr* 46:47 JI 12 '16
- Methods used in comprehensive survey of Buffalo, N. Y. *diag map Eng N* 75:466-7 Mr 9 '16
- Mill creek sewer tunnel alignment survey in St. Louis. R. L. Gans. *il diag map Eng N* 76:410-11 Ag 31 '16
- Practice in rapid taping in Montana mountain work. E. E. Pluma. *Eng N* 75:804 Ag 27 '16
- Precise-level survey of the city of Portland. Ore. W. P. Hardesty. *il diags Eng N* 76:55-8 JI 13 '16
- Reconnaissance surveying with single aneroid barometer. L. A. Palmer. *Eng N* 74:1181-2 D 16 '15
- Replace stakes by monuments without a transit. *diag Eng Rec* 73:219-20 F 12 '16
- Simple diagram for reducing tachometer readings. F. R. Freeman. *diags Engineer* 122: 82 JI 28 '16
- Simple method of securing approximate horizontal distances. G. F. Schlesinger. *Eng & Contr* 46:188-9 Ag 30 '16
- Survey routine in shore tunnel, Milwaukee. *il Eng N* 76:657-8 O 5 '16
- Triangulation details for bridge survey. *diags Eng N* 75:327-8 F 17 '16
- What causes peculiar refraction on Arizona desert? K. G. Habermehl. *Eng Rec* 73:652 My 13 '16
- What causes peculiar refraction on Arizona desert? T: A. Hayden. *Eng Rec* 73:427 Mr 25 '16
- See also* Land descriptions; Mine surveying; Railroad surveying; Surveying instruments; Topographical surveying
- Signals**
- Triangulation signal lamp of the U. S. coast and geodetic survey. E. G. Fischer. *il Sci Am* 114:454+ Ap 29 '16; Same. *Elec W* 67: 1118 My 13 '16
- Surveying, Hydrographic.** *See* Hydrographic surveying
- Surveying, Topographical.** *See* Topographical surveying
- Surveying instruments**
- Autographic cross-sectioning by a new instrument. J: Airey. *il diag Eng N* 75:1092-4 Je 8 '16
- Bubble-reading mirror proves source of error in leveling. G: Bevier, jr. *Eng N* 76:1037-8 N 30 '16
- Cross section instrument. *il Ry Age* 59:1162 D 17 '15
- Improved level rod increases accuracy in precise work. E. G. Fischer. *il Eng N* 76:895-6 N 9 '16
- Instrument table for tunnel surveying, Milwaukee city engineer's department. *diag Eng & Contr* 46:189 Ag 30 '16

New topographic survey methods for rapid work. J. H. Bonner and F. E. Bonner. *il Eng N* 75:24-7 Ja 6 '16

Optical plummet for surveying instruments. G. D. Hill. *il Ry R* 58:268-9 F 19 '16

Plumb-bob illuminator. R. K. Warner. *diags Eng & Min J* 101:223 Ja 29 '16

Roosevelt self-speaking rod. J: H. Sawkins. *il Eng Rec* 73:707 My 27 '16

Special device and procedure for cross-sectioning tunnels. T. H. Robertson. *diags Eng & Contr* 46:154-5 Ag 16 '16

See also Plane table; Planimeters; Steel tape; Transit, Surveyors'

Surveyors

Disappearance of surveyors from state societies of engineers and surveyors. *Eng & Contr* 46:186-7 Ag 30 '16

Surveyors' transit. *See* Transit, Surveyors'

Suspended railways

Intra-shop transportation. N. Whichello. *il plan Iron Tr R* 58:823-4 Ap 13 '16

Material handling monorail. N. Winchello. *il plan Iron Age* 97:191-2 Ja 20 '16

See also Cableways; Telpherage

Suspension bridges. *See* Bridges, Suspension

Sussex (steamship)

Survivor's impressions of the Sussex disaster and observations in London and Petrograd. E: H. Huxley. *il Sci Am* 114:510-11+ My 13 '16

Swaging machines

Etna cold swaging machine. *il Mach* 22:349-50 D '15

Swamps. *See* Marshes

Swasey, Ambrose, 1846-

Sketch. *por Am Soc M E J* 38:647-9 Ag '16

Sweden**Industries and resources**

Electrochemical possibilities of the Pacific coast states as compared with those of Sweden and Norway. J. W. Beckman. *Met & Chem Eng* 15:18-21 JI 1 '16

Sweeping. *See* Vacuum cleaners

Sweeping compounds

Keeping the factory floor clean. *Factory* 17: 698+ D '16

Sweet, John Edson, 1832-1916

Sketch. *por Iron Tr R* 58:1109 My 18 '16; *Eng N* 75:954-5 My 18 '16; *Iron Age* 97:1176 My 11 '16; *Power* 43:715-16 My 16 '16; *Am Soc M E J* 38:473-7 Je '16; *Sibley J* 30:275-6 Je '16

Sweet gum. *See* Storax

Swimming pools

Construction of a concrete swimming pool at Pendleton, Ore. L. R. W. Allison. *il diag Concrete* 8:149-50 Ap '16

Construction of an open air concrete swimming pool in the Canadian Rockies. W: W. Hay. *il diags Concrete* 8:147-9 Ap '16

Data for figuring an indoor plunge. *Heat & Ven* 13:39-40 Ja '16

Electric purification of water in swimming pool. *il Elec R & W Elec'n* 69:609 S 30 '16

Features of swimming pool control. W. L. Lewis. *J Ind & Eng Chem* 8:914-21 O '16

Heating and plumbing systems in a public natatorium in Chicago. *il plan Dom Eng* 77: 36-7 O 14 '16

Information about swimming pool. *diags Dom Eng* 74:391-3 Mr 25 '16

Municipal swimming pool and flush tank at Oakdale, Cal. *Munic Eng* 49:212 D '15

Municipal swimming pool. Pullman, Ill., has unique features. *il Metal Work* 85:33-6 Ja 7 '16

Plumbing and heating details of plunges. *diags Metal Work* 84:729-30, 837-8; 85:188-9, 350-1, 633-5 D 10, 31 '15, F 4, Mr 10, My 12 '16

Preliminary report upon purification of swimming pools of the State university of Iowa. J. J. Hinman, jr. *il Eng & Contr* 46:135-6 Ag 9 '16

Quarter-horsepower motor saves \$25 per month for swimming pool. *il Elec R & W Elec'n* 68:464 Mr 11 '16

Swimming-pool sanitation. *Sci Am S* 82:246 O 14 '16

Swimming pools and supplies for them. *Munic Eng* 50:58 F '16

Swine

Five thousand hogs eat Denver's garbage. *il* Eng Rec 74:135-6 J1 29 '16

Swing bridges. See Drawbridges**Switchboards**

Automatic storage-battery charging switchboards for fire-alarm systems. G: A. Broder. *il* diags Elec R & W Elec'n 69:229-31 N 25 '16

Comparison of 600, 1200, and 2400-volt switchboards. O. Wottmann. *diags* Engineer 121: 66 Ja 21 '16

Construction of switchboard cable trenches. M. M. Samuels. *diags* Elec W 67:1478 Je 24 '16

Conway building power plan, Chicago. T: Wilson. *il* plan Power 43:68-9 Ja 18 '16

Electrical features of a modern substation. *il* Elec R & W Elec'n 69:281-2 Ag 12 '16

Electrification of isolated factories. *diags* Engineer 121:80-2, 150-2 Ja 28, F 18 '16

Hints to promote efficiency in erecting switchboards. H. B. Stillman. *diags* Elec R & W Elec'n 69:894-5 N 18 '16

Manchester to Bury electrification. *il* diags plan Engineer 121:75-8 Ja 28 '16

Modern switchboard practice. J: W. Upp. *il* Gen Elec R 19:434-9 Je '16

Newcastle local section: chairman's address. P. V. Hunter. *diags* Inst E E J 54:104-10 D 15 '15

Operating direct-current generators in parallel. H. G. Gibson. *diags* Power 43:907-9 Je 27 '16

Recent railway substation; switchboard and distribution feature. C. A. Hecker. *il* diag Elec Ry J 47:1146-8 Je 17 '16

Safety first switchboard devices. B. P. Rucker. *il* diags Gen Elec R 19:881-91 O '16

Safety truck-type inclosed switchboards. *il* Elec W 68:239 J1 29 '16; Elec Ry J 48:241 Ag 5 '16; Elec R & W Elec'n 69:305 Ag 12 '16; Power 44:276 Ag 22 '16

Switchboard features in a new Boston substation. *il* Elec R & W Elec'n 68:196-7 Ja 29 '16

Tenants' thieves' cut-out cabinet. *diag* Elec W 67:664 Mr 18 '16

World's largest direct-current station, Ford motor co., Detroit. F. Allison. *Elec W* 68: 316 Ag 12 '16

See also Electric switches

Switches, Electric. See Electric switches**Switches, Railroad.** See Railroads—Switches, frogs, etc; Street railroads—Track**Switching.** See Railroads—Switching**Switzerland**

See also Automobile industry and trade—Switzerland; Electric railroads—Switzerland; Railroads—Switzerland

Sycamore

Biggest shade tree is also best. *il* Am For 21: 1108-9 D '15

Symbols

One good way to number parts. *Factory* 17: 667-8 D '16

Pipe symbol chart. T. W. Reynolds. *Heat & Ven* 13:49-51 F '16

Symbols, Electric. See Electric symbols**Synagogues**

B'Nai Beshurun temple, Newark, N. J. *il* plan Brickb 24:305-6, pl 166-7 D '15

Synchronous converters. See Rotary converters**Synchronous gearing**

Synchronous gearing; mechanism of essential importance in the printing telegraph. *il* diags Sci Am S 81:389 Je 17 '16

Synchronous motors. See Electric motors, Synchronous**Synchroscope**

Electrification of isolated factories; synchroscope connections. *diags* Engineer 121:152 F 18 '16

Synchronism indicator; construction and operation. *diag* Gen Elec R 19:731-2 Ag '16

Syringic acids

Synthesis of certain substituted syringic acids. M. T. Bogert and E. Plaut. *Am Chem Soc J* 37:2723-33 D '15

Syrups

Determination of moisture in syrups by the calcium carbide method. R. M. West. *diag* J Ind & Eng Chem 8:31-5 Ja '16

Study of the syrup precipitate in white sugar manufacture. C: E. Coates and L. C. Slater. *J Ind & Eng Chem* 8:789-92 S '16

See also Corn syrup; Maple syrup

T**Tables**

See also Workbenches

Tables, Mathematical. See Logarithms**Tactics**

War game. G. von Horvath. *il* maps Sci Am 114:384+, 405+, 428+, 453+, 476+, 509+, 556-7, 587+ Ap 8-May 13, 27-Je 3 '16

See also Cavalry; Military art and science

Tailings

Construct dams by hydraulic method with minimum of cost, labor and equipment. C. Wigmore. *il* diag Eng Rec 74:328-9 S 9 '16

Flotation experiments on a Joplin tailing; with discussion. W. A. Whitaker and others. *tables* Met & Chem Eng 15:131-7 Ag 1 '16

Tailoring

Measuring device for tailors that insures perfect fitting garments. *il* Sci Am 115:157-8 Ag 12 '16

Taintor gates

Large Taintor gates for a dam. *diags* Eng N 75:1211 Je 29 '16

Taintor gate seat and chain connection. *diag* Eng & Contr 45:507 My 31 '16

Talc

Method of mining talc. F. R. Hewitt. *Am Inst Min E Bul* 116:1371-2 Ag '16

New industry formed through supply of South African talc. *Sci Am* 114:345 Ap 1 '16

Tallassee power company

Famous Yadkin development nearing completion. *il* diags plan Eng N 76:917-22 N 16 '16
Modern turbines and new power house replace earlier French design of Yadkin river power project. *il* diags plan Eng Rec 74:610-13 N 18 '16

Tamping machines

Electric, pneumatic and hand tamping of ballast. G: W. Vaughan. *Eng N* 75:515 Mr 16 '16

Electric track tamper used in Germany. G. Schimpff. *il* diags Eng N 75:515-16 Mr 16 '16

Electric track tampers on the New York Central. G. W. Vaughan. *il* Eng N 76:946-7 N 16 '16

Imperial pneumatic tie tamper. W: H. Armstrong. *il* Ry R 57:789-91 D 18 '15

Pneumatic machines reduce tamping gangs from six to two. H. L. Hicks. *il* Elec Ry J 48:533-5 S 23 '16

Self-propelling tamping machine. *il* Engineer 122:300 O 6 '16

Status of the air tie-tamper. *Eng N* 75:611 Mr 30 '16

Varied uses of a pneumatic tamping outfit. C: Brennan. *il* Elec Ry J 48:1118-19 N 25 '16

Tank cars

American railway tank wagons for wine. *il* Engineer 120:464 N 12 '15

Tank car specifications modified. *Ry Mech* Eng 90:128 Mr '16

Tank ships

Cargo steamer lengthened over 50 feet and converted into an oil tanker. *il* Int Marine Eng 21:420-1 S '16

Cylindrical tank oil-carrying steamers Breifond and Aztec; abstract. *Int Marine Eng* 21:85 F '16

Geared turbine tank steamer; sister ships, Sucrosa and Cubadist, built at the Fore river yard for carrying molasses or petroleum. *il* diags plans Int Marine Eng 21:358-65 Ag '16

Launching of the tank steamer Cubadist. *il* Int Marine Eng 21:210 My '16

Motor tank ship Hamlet. *il* Engineer 122:346-7, 350 O 20 '16

Oil tank steamer Antwerpen. *plans* Int Marine Eng 21:490-1 N '16

Tank ships—Continued

- Oil tank steamship Texas. il plans Int Marine Eng 21:232-3 My '16
Plans of motor-driven oil tanker. Int Marine Eng 21:262 My '16
Twin-screw motor tank vessel Hera. il plan Engineer 120:478-9, 482 N 19 '15
Westinghouse geared turbine machinery for single screw tank steamer. il diags plans Int Marine Eng 21:366-77 Ag '16

Tanks

- Building an oil-storage plant under difficulties, Providence, R. I. il plan Eng N 74:1276-7 D 30 '15
Chart for determining quantity of road oil in partly filled tanks. E. E. Glass. Eng & Contr 46:299 O 4 '16
Chart giving sizes and volumes of tanks. Metal Work 86:73 JI 21 '16
Content of cylindrical tanks. Power 44:701 N 14 '16
Convenient method for recording contents of cylindrical, horizontal tanks. S. W. Maher. J Ind & Eng Chem 8:636-7 JI '16
Expansion tank data for hot water heating systems. diag Heat & Ven 13:58-9 F '16
Gauging of storage tanks. K. B. Howell. J Ind & Eng Chem 8:286-7, 439-3 Mr, My '16
Gauging of storage tanks. R. L. Ogden. J Ind & Eng Chem 8:58-9 Ja '16
Putting bottom on sheet metal tank. Metal Work 85:464+ Ap 7 '16
Time required to empty a tank. Power 43:269 F 22 '16
See also Gasholders; Grain elevators; Imhoff tanks; Septic tanks; Tank cars; Tank ships; Water tanks; Water towers

Tanks, Concrete

- Construction of a high concrete tank at Knoxville, Tenn. R. L. Mason. il diags Concrete 8:217-18 My '16
Design and construction of tanks for temporary storage of storm water at Toronto, Ontario. W. G. Cameron. diags Eng & Contr 45:90-1 Ja 26 '16
Design and construction of world's highest reinforced concrete water tower-tank, Middleboro, Mass. G. A. Sampson. il diags Eng & Contr 44:473-5 D 22 '15
Effect of commercial liquids on concrete. Concrete 9:11-12 JI '16; Abstract. Eng Rec 74:470-1 O 14 '16
Underground oil-storage tanks with flame-proof vent. diags Eng N 75:663-4 Ap 6 '16
See also Water towers, Concrete

Tanks, Sewage. *See* Imhoff tanks; Septic tanks; Sewage tanks**Tanks, Steel**

- Steel arches are designed to eliminate rim tension in oil reservoirs. H. B. Post. diags Eng Rec 74:353-4 S 16 '16

Tanks (tractors). *See* Tractors**Tanneries**

- Activated sludge process for the purification of wastes from a sheepskin tannery, abstract. H. P. Eddy. Munic J 41:513 O 26 '16
Activated-sludge process in treatment of tannery wastes. H. P. Eddy and A. L. Fales. J Ind & Eng Chem 8:648-51 JI '16

Tanning

- Effect of technical education upon the leather industry. A. Rogers. il Sci Am 114:14-15 Ja 1 '16
New methods of utilizing babul pods for tanning. Sci Am 115:177 Ag 19 '16
See also Leather; Tanneries; Tannins

Tannins

- By-products of the lumber industry. H. K. Benson. diag U S Bur For & Dom Com 110:32-9 '16
Ceanothus velutinus (snow brush) as a source of wax and tannin. C. C. Scalione and H. S. Blakemore. il J Ind & Eng Chem 8:411-13 My '16
Manufacture of tannin extracts and the use of a new evaporator. il Met & Chem Eng 15:361-2 S 15 '16
Our present and future sources of vegetable tannins. S. J. Record. il Sci Am 114:580-1+ Je 3 '16

Tape, Steel. *See* Steel tape**Tapers**

- Analysis of formula for finding taper per foot. Mach 22:896-7 Je '16
Tapers and angles. S. L. Cook. Foundry 44:272a JI '16

Tapping machines

- Automatically tapping two nuts at the same time. il Iron Age 97:999 Ap 27 '16
Direct motor-driven tapping machine. il Iron Age 97:311 F 3 '16
Horizontal precision tapping machine. il Iron Age 98:580 S 14 '16
10-spindle automatic nut tapper. il Iron Tr R 58:981 My 4 '16
Vertical tapping machine for dies. il Iron Age 98:1164 N 23 '16

Taps

- Greenfield gun tap. il Mach 22:1099 Ag '16; Eng M 51:sup6-7 Ag '16; Ry Mech Eng 90:429 Ag '16

Tar

- Analysis of oil-gas tar. H. E. Brunkow. Am Gas Light J 104:123 F 21 '16; Same. Gas Age 38:280 S 15 '16
Burning and distilling water gas tar. C. Otten, jr. diags Am Gas Light J 104:149-51 Mr 6 '16
Distillation of tar by the Raschig process. diag Gas Age 38:367-8 O 2 '16
Effects of exposure on tar products. C. S. Reeve and B. A. Anderton. il diag J Fr Inst 182:463-75 O '16
Influence of the war on British tar distillation industry; abstract. W. H. Coleman. Met & Chem Eng 15:356 S 15 '16
Lead and tar paints on the Minidoka reclamation project. Am Gas Light J 104:195 Mr 27 '16
Small tar treating plant. plan Am Gas Light J 104:125 F 21 '16
Tar-coated concrete pavement in Ann Arbor, Mich. M. Osgood. Eng N 75:352-3 F 24 '16; Same. Eng & Contr 45:363-5 Ap 19 '16
Tar coating protects high-velocity conduits. C. H. Paul. Eng Rec 73:108 Ja 22 '16; Same. Eng & Contr 45:56 Ja 19 '16; Same. Eng N 75:562-3 Ja 13 '16
Tar dehydration. E. V. Chambers. plan Am Gas Light J 103:389-91 D 20 '15
Value of tar, ammonia, and benzol products in gas making totalled \$25,000,000 in 1915. Am Gas Light J 105:204 S 25 '16
Water-gas tar for treating wood-paving blocks. J. S. Miller, jr. Eng N 75:433 Mr 2 '16
See also Coal tar; Gas, Water; Gas manufacture and works

Tarantism

- Tarantism and the dancing mania. Sci Am S 82:195 S 23 '16

Tarawera, Mt.

- Tragedy of Tarawera. M. Proctor. il Sci Am S 80:392-3 D 18 '15

Target practice

- Electrical indicator of scores for rifle ranges. Sci Am 114:304 Mr 18 '16
Using an electric lamp in place of ammunition in marksmanship training. il Sci Am 115:245-6 S 9 '16

Tariff

- Anti-dumping legislation in various countries. Sci Am 115:186 Ag 26 '16
Report on trade and tariffs in Brazil, Uruguay, Argentina, Chile, Bolivia, and Peru. U S Fed Tr Comm 246p '16

China

- Cotton goods in China. R. M. Odell. il U S Bur For & Dom Com 107:131-7 '16

Peru

- Mineral export tax in Peru. Eng & Min J 100:1018 D 18 '15

South America

- Tariff systems of South American countries. F. R. Rutter. U S Bur For & Dom Com tariff ser 34:1-308 '16

United States

- Dumping problem is complicated. H. C. Emery. Iron Tr R 58:389-92 F 17 '16
Dye bill debate. Textile World 51:3185 JI 15 '16
Dyestuff tariff before Congress. Met & Chem Eng 15:65-6 JI 15 '16

Tariff—United States—Continued

- Hearings on proposed dyestuff tariff. *Met & Chem Eng* 14:125-9 F 1 '16
 New dyestuffs bill. *Textile World* 51:3103+ JI 8 '16
 Problem of anti-dumping legislation. H. C. Emery. *Iron Age* 97:377-9 F 10 '16
 Protection for our home market. H. C. Estep. *il Iron Tr R* 58:1-9 Ja 6 '16
 Status of new tariff law on dyestuffs. *Met & Chem Eng* 15:283-4 S 15 '16

Venezuela

- Customs tariff of Venezuela. L. Domeratzky. *U S Bur For & Dom Com tariff ser* 33:1-53 '16

Tariff commission

- Presidential approval of the tariff commission plan. G. Pope. *Am Ind* 16:10-11 F '16
 Tariff commission details. *Textile World* 51:4085 S 23 '16
 What can a tariff commission do? W. L. Marvin. *Textile World* 51:505+ Ja 15 '16

Tartaric acid

- Determination of tartaric acid. B. G. Hartmann, J. R. Eoff and M. J. Ingle. *J Ind & Eng Chem* 8:422-5 My '16
 Electrolytic preparation of tartaric acids; patent of M. Vaygouny. *diag Met & Chem Eng* 15:47-8 JI 1 '16
 Synthesis of tartaric acid. *diag Met & Chem Eng* 15:151-2 Ag 1 '16

Task system. See Bonus system**Tasmania.** See Copper mines and mining—Tasmania**Tautomerism**

- Evidence for the electronic tautomerism of benzene derivatives. H. S. Fry. *Am Chem Soc J* 38:1333-8 JI 16 '16
 New case of tautomerism: 1,4,5,6-tetrahydroxy-naphthalene. A. S. Wheeler and V. C. Edwards. *Am Chem Soc J* 38:387-93 F '16
 Triphenylmethyl; tautomerism of triarylcannabinols. M. Gomberg and N. E. Van Stone. *Am Chem Soc J* 38:1577-1606 Ag '16

Tavener bill. See Scientific management—Laws and legislation**Taxation**

- President's proposed tax on iron and steel. *Iron Age* 96:1352-3 D 9 '15
 Provisions of the new tax on munitions. *Iron Age* 98:32-3 JI 6 '16
 Tax burdens increased by great bonded debt. J. S. Chambers. *Good Roads n s* 12:76-8 Ag 5 '16
 Taxation in its relation to industrial expansion. M. J. Hickey. *Am Ind* 17:11-12 Ag '16
 Taxation of profits. *Engineer* 121:63-4 Ja 21 '16
 Taxation of wages. *Am Ind* 17:43-4 N '16
See also Assessment; Gasoline—Taxation; Income tax; Mine taxation; Municipal finance; Public utilities—Taxation; Tariff

Taxidermy

- Studying the eyes of wild animals. *il Sci Am* 114:666 Je 24 '16

Taylor, Frederick Winslow, 1856-1915

- Tribute to F. W. Taylor at annual meeting of Am. Soc. M. E. *Am Soc M E J* 38:53-6 Ja '16

Taylor society

- Conference on scientific management. *Ann Arbor, Mich., May 11-13. Iron Age* 97:1208-11 My 18 '16; *Iron Tr R* 58:1107-8 My 18 '16

Taylor system. See Scientific management**Tea**

- Device that brews perfect tea automatically. *il Sci Am* 114:589 Je 3 '16

Tea houses

- Mrs. O. H. P. Belmont's tea house, Newport, R. I. D. H. Fessenden. *il diags Arch Rec* 39:499-512 Je '16

Teak

- Teak in Siam and Indo-China. F. H. Smith. *U S Bur For & Dom Com* 108:1-21 '15

Technical chemistry. See Chemistry, Technical**Technical education**

- Co-operative education in electric railway work. A. M. Wilson. *il Elec Ry J* 47:724-7 Ap 15 '16

- Co-operative education in Rockford, Ill. A. Gschwindt. *Elec R & W Elec'n* 69:731 O 21 '16

- Co-ordinating university and shop work. A. M. Wilson. *il Elec R & W Elec'n* 69:544-6 S 23 '16

- Schools to train foremen for our chemical industries. *Eng & Min J* 102:799-800 O 28 '16

- Summer course in scientific management. W. Kent. *Iron Age* 96:1306-7 D 2 '15

See also Apprentices; Corporation schools; Engineering education; Forestry schools and education; Industrial education; Manual training; Railroad education; Schools and shops; Cooperation of; Trade schools; Vocational education

Technical journals. See Engineering periodicals; Trade papers**Technical literature.** See Engineering literature**Technical terms**

- Compound terms in technical English. F. H. Teall. *Inland Ptr* 57:207-8 My '16
 Conference on abbreviations and terminology. *Am Soc M E J* 38:319-20 Ap '16
 Standards for abbreviations. *Am Soc M E J* 38:560-1 JI '16
 Writing of compound technical terms. C. W. Park. *Eng & Contr* 44:498-500 D 29 '15
See also Building—Terminology; Electric wire and wiring—Terminology

Technical writing

- Advantages of technical writing. *Coal Age* 10:568, 684, 814 O 7, 21, N 11 '16
 Does technical writing pay? F. B. Jacobs. *Power* 44:513 O 10 '16
 Technical writing an aid in overcoming temptation to let-up in effort when mere routine is mastered. J. E. Bullard. *Am Gas Light J* 105:189-90 S 18 '16

Technology

See also Building; Chemistry, Technical; Electric engineering; Engineering; Machinery; Manufactures; Metallurgy; Paper making and trade; Photography; Printing; Railroad engineering; Technical education; Technical terms

Teeth

- Importance of the care of the teeth. *Sci Am* S 82:144 Ag 26 '16

Telegrams

- Effect of conditions on telegraph blank. H. S. Yohe. *Metal Work* 86:377 S 22 '16
 Who is liable for loss through bungled telegram. E. J. Buckley. *Metal Work* 86:353-4 S 15 '16

Telegraph

- Association of railway telegraph superintendents 35th annual convention. *Ry Age* 60:1577-9 Je 30 '16
 Increasing the traffic capacity of telegraph lines by acoustic tuning; abstract. *diags Elec W* 67:723-4 Mr 25 '16
 Multiple telegraph system based on the attenuation of frequency. *il Sci Am* 115:442 N 11 '16
 Secondary cell installation for telegraph offices. *diag Engineer* 121:512-13 Je 16 '16
 Transmission company uses Morse code to supplement telephone service. H. L. Patterson. *Elec W* 68:765 O 14 '16

See also Electric lines; Electric wire and wiring; Military telegraph; Telegraph codes; Train dispatching; Wireless telegraph

Government ownership

- Socialistic telephones and telegraphs. F. G. R. Gordon. *Am Ind* 17:15-16 O '16

Telegraph, Military. See Military telegraph**Telegraph, Printing**

- Principles of modern printing telegraphy. H. H. Harrison. *diags Inst E E J* 54:309-63 F 15 '16; *Discussion*. 54:364-78, 438-45 F 15-Mr 1 '16

- Synchronous gearing; mechanisms of essential importance in the printing telegraph. *il diags Sci Am* S 81:389 Je 17 '16

Telegraph, Submarine. See Cables, Submarine**Telegraph, Wireless.** See Wireless telegraph**Telegraph codes**

- New telegraphic cipher code. *Ry Age* 61:1002-3 D 1 '16

Telegraph codes—Continued

Telegraph codes of the world. D. McNicol. Sci Am S 81:266-7 Ap 22 '16
 Telegraphic cryptogram. E. Berkel. Sci Am 113:519 D 11 '15

Telegraph poles. See Poles**Telephone**

Automatic switchboard telephone system of Los Angeles. W. L. Campbell. il Am Inst E E Pro 34:1847-71 Ag '15; Discussion. 35: 518-25 Ap '16
 Calling-number recorder for magneto telephones. il Elec R & W Elec'n 69:863 N 11 '16
 Causes of telephone noise and its elimination. F. T. Coldwell. diag Elec W 67:1420-1 Je 17 '16
 Combination telephone directory and antiseptic mouthpiece. il Sci Am 115:45 JI 8 '16
 Counter as a bookkeeper for your telephone calls. il Sci Am 115:442 N 11 '16
 Hell Gate bridge built by aid of telephones. il Elec R & W Elec'n 67:1158-9 D 25 '15
 Intercommunicating telephone. il Elec W 68: 337 Ag 12 '16
 Loud-speaking telephone window demonstrations. il Elec R & W Elec'n 67:1036 D 4 '15; Elec W 66:1334 D 11 '15
 Measuring telephone service with meter contained in receiver. il Sci Am 114:454 Ap 29 '16
 New telephone sound augments. C. Mayfield. Sci Am S 82:180-1 S 16 '16
 Operating features of a line patrolman's telephone and signaling system. A. W. Lee. il diag Elec W 67:1049-50 My 6 '16
 Taking direct current for telephone and signal circuits from commercial lighting networks; abstract. F. Schroeter. diag Elec W 67:330-1 F 5 '16
 Telephone art. J. J. Carty. J Fr Inst 182:89-97 JI '16
 Telephone bracket for desk. il Elec R & W Elec'n 68:197 Ja 29 '16
 Using telephone lines for an automatic fire alarm system. il Sci Am 115:127 Ag 5 '16
 Vestibule telephone set. il Elec W 67:450 F 19 '16

See also Electric lines; Electric wire and wiring; Mine telephone; Switchboards; Telephone lines; Telescribe; Wireless telephone

Government ownership

Economic, social and political conditions in Europe which influence government ownership of the telephone. J. P. Duncan. Elec R & W Elec'n 67:1153-5 D 25 '15
 Socialistic telephones and telegraphs. F. G. R. Gordon. Am Ind 17:15-16 O '16

Testing

Substitute for the human voice and the human ear in telephone transmission line tests and transmitter tests; abstract. B. S. Cohen. il diag Elec W 68:90-1 JI 8 '16

Telephone, Military. See Military telephone**Telephone, Portable**

New type of portable telephone for the forest rangers. il Sci Am 115:17 JI 1 '16

Telephone, Wireless. See Wireless telephone**Telephone association, United States independent. See United States independent telephone association****Telephone cables**

Loaded cable. Elec W 66:1270 D 4 '15
 Loaded cables in the Vienna telephone system; abstract. E. F. Petritsch. Elec W 67:387-8 F 12 '16

Telephone companies**Employees**

Opportunities for young electrical engineers. M. C. Rorty. Elec W 67:654-6 Mr 18 '16

Management

Telephone plant organization. F. Day. Elec R & W Elec'n 67:1028-31 D 4 '15

Telephone directories

Combination telephone directory and antiseptic mouthpiece. il Sci Am 115:45 JI 8 '16
 Telephone directory that operates like a window shade. il Sci Am 114:624 Je 10 '16

Telephone in war. See Military telephone**Telephone lines**

Designers must provide for telephone conduits. R. D. Graham. Eng N 75:332-3 F 17 '16

Earth connections for telephone exchanges; abstract. W. H. Grinstead. diag Elec W 68: 678-9 S 30 '16

Eliminating transmission line telephone troubles. E. P. Peck. il diag Elec W 68: 515-18 S 9 '16

Formulas for lines with uniform leak loads. A. E. Kennelly. diag Elec R & W Elec'n 68:1149-51 Je 24 '16

Inductive interference as a practical problem. A. H. Griswold and R. W. Mastick. diag Am Inst E E Pro 35:1339-75 S '16

Leakage and attenuation in telephony; abstract. B. S. Cohen and J. G. Hill. Elec W 68:580-1 S 16 '16

Method of improving service and protecting dispatcher's telephone line. diag Elec W 68: 670 S 30 '16

Progress of the investigation of inductive interference by the joint committee on inductive interference; with discussion. Am Inst E E Pro 35:401-13 Mr '16

Protection of telephone circuits used in electric power distribution. E. K. Shelton. il diag Gen Elec R 19:1126-33 D '16

Pupinized telephone lines. F. B. Crocker. Sci Am S 81:359 Je 3 '16

Remodeling a railway telephone system. il diag Elec Ry J 47:92-3 Ja 8 '16

Submarine cable rapid telegraphy; ocean and intercontinental telephony. B. Gatl. il diag Am Inst E E Pro 34:2101-29 S '15; Discussion. 35:1059-62 JI '16

Telephones on power lines. diag Elec R & W Elec'n 68:773-4 Ap 29 '16

See also Telephone cables

Telephone poles. See Poles; Telephone lines**Telescope**

Great Canadian reflector. Sci Am S 82:105 Ag 12 '16

Great Dominion telescope. D. P. Clemons. il Am Soc M E J 38:559-60 JI '16

Large telescope built by students. K. P. Crawford. il Sci Am 115:239 S 9 '16

Light transmission through telescopes. F. Kollmorgen. diag Illum Eng Soc 11:220-8; Discussion. 228-34 no 2 '16

Military telescopes and binoculars. il Sci Am S 81:340 My 27 '16

See also Periscope; Telescopic sights

Telescopic sights

Panoramic sight for guns. il diag Sci Am 114: 154 F 5 '16

Telescopic rifle sight in the United States army. il Sci Am 115:495 D 2 '16

See also Firearms—Sights

Telescribe

Putting the telephone message in writing with the dictating phonograph. il Sci Am 115:15 JI 1 '16

Telethermometer

Telethermometer for aeroplanes. Sci Am 115: 408 N 4 '16

Telometer

Simple compression indicator. il Power 43:49 Ja 11 '16

Telpherage

Handling materials in manufacturing plants. R. L. Streeter. il Eng M 51:226-40 My '16

Telpher system for disposing of excavated material. il diag Eng & Contr 46:341 O 18 '16

See also Cableways; Conveying machinery

Temperature

See also Alcohol, Physiological effects of; Prohibition

Temperature

See also Animal heat; Atmospheric temperature; Boiling points; Earth temperature; Ocean temperature

Measurement

Table to convert Fahrenheit to centigrade readings. L. Griffin. Power 44:244-5 Ag 15 '16

See also Calorimeters and calorimetry; Pyrometers and pyrometry; Thermometers and thermometry; Thermopiles

- Temperature, Animal and human**
Heat balance of the human body. M. W. Franklin. *Heat & Ven* 12:45-6 D '15
- Temperature, Atmospheric.** See Atmospheric temperature
- Temperature, Low.** See Cryoscopy
- Temperature recorders**
Recording instrument for thermo-couple. A. R. Greenleaf. *Elec W* 67:380 F 12 '16
- Temperature regulators.** See Thermostats
- Temples**
Sun temple in Mesa Verde park. C. H. Butman. *il Sci Am S* 81:312-13 My 13 '16
See also Church architecture; Synagogues
- Templets**
Adjustable grade templet. F. T. Teddy. *diag Eng & Min J* 102:866 N 11 '16
Laying out cycloidal pump impellers. G. Luck. *diags Mach* 22:589-90 Mr '16
Templets for make-up connections. F. R. Parsons. *diags Power* 44:436-7 S 19 '16
- Tenement houses**
Deplorable conditions in an Italian district; investigation conducted in Chicago by the Bureau of social surveys of the department of public welfare. *il Metal Work* 86:5-6 J1 7 '16
Sanitary equipment of New Jersey tenements. *il Metal Work* 85:190-2 F 4 '16
Tenement house construction in New Jersey. *Bldg Age* 38:66 Ag; 58 O; 32 N '16
See also Housing problem
- Tennessee.** See Mines and mineral resources—Tennessee
- Tennis court buildings**
Enclosed tennis court buildings. W. D. Blair. *il plan Brickb* 25:177-80 J1 '16
- Tennis courts**
How to build concrete tennis courts. *il diag Eng Rec* 74:358-9 S 16 '16
Lighting of a tennis court by mercury vapour lamps. *il Illum Engr* 9:293 S '16
Reflector units for tennis-court lighting arranged for lowering. *il Elec W* 68:136 J1 15 '16
Suggested specifications for construction of concrete tennis courts. *plan Concrete* 9:19 J1 '16
- Tension devices (textile machinery)**
Automatic spiral yarn tension device. *il Textile World* 51:119 D 11 '15
Drag on bobbins. *diags Textile World* 51:3837+ S 2 '16
Simple tension device. *diag Textile World* 51:4777 N 4 '16
Tension device for winding machines. *diag Textile World* 51:119+ D 11 '15
- Tents**
Portable camp outfit. *il Ry Age* 60:500 Mr 17 '16
- Tents, Military**
Passing of the tented city; how the aeroplane scout has affected the military camp. E. C. Crossman. *il Sci Am* 115:10+ J1 1 '16
- Teredo.** See Borers (animals)
- Terminals**
Buffalo barge canal terminal. *diags plan Eng N* 74:1124-5 F 9 '15
Cellular type of quay wall at Halifax terminals compared with other designs. *diags Eng Rec* 73:213-15 F 12 '16
Competing marine terminals at seaports. H. M. Harding. *il Int Marine Eng* 21:155-8 O '16
Concreting plant for Halifax ocean-terminal work. *il diags plan Eng N* 75:249-53 F 10 '16
Construction features of the substructure for the Ocean steamship co.'s terminal at Savannah, Ga. *il Eng & Contr* 45:11-12 Ja 5 '16
Corporation formed to study terminal problems. *Int Marine Eng* 21:440 O '16
Costly congestion at marine terminals. A. J. Marshall. *Int Marine Eng* 21:193-4 Ap '16
Development of appliances for handling raw materials and merchandise at ports and other large centres of traffic. J. P. Griffith. *Engineer* 122:366-7, 389-91 O 27-N 3 '16
Development of inland ocean port at Houston, Tex. *il plans Eng N* 75:978-80 My 25 '16
Freight congestion at the port of New York. H. T. Wade. *il Sci Am* 113:554-5+ D 25 '15
Freight handling at marine terminals. A. J. Marshall. *Int Marine Eng* 21:225 My '16; Same (Are national express-freight companies needed?) *Eng Rec* 73:606 My 6 '16
Freight handling through unoccupied terminal space. S. H. Libby. *il Int Marine Eng* 21:459-60 O '16
Halifax ocean terminals. *il diags maps Eng N* 74:1118-23 D 9 '15
Harbor and port terminal facilities and work. H. M. Harding. *Int Marine Eng* 21:60-1 F '16
Hoisting equipment for marine terminals. *il Int Marine Eng* 21:462-4 O '16
How electricity is harnessed to terminal work. R. H. Rogers. *il Int Marine Eng* 21:464-7 O '16
How to make cargo handling more efficient. H. M. Harding and J. A. Jackson. *Eng Rec* 72:693-4 D 4 '15
Large volume of concrete handled in small batches at Halifax ocean terminals. *il diags plan Eng Rec* 73:143-6 Ja 29 '16
Marine terminal improvements at port of Philadelphia. *map Int Marine Eng* 21:437-8 O '16
Mechanical equipment used in the port of New Orleans. W. Von Phul. *il plan Am Soc M E J* 38:515-25; Discussion. 525-8 J1 16
Mississippi water terminals. *Eng N* 75:357 F 24 '16
Motor trucks as the solution of the marine freight terminal problems. M. C. Horine. *il Int Marine Eng* 21:20-2 Ja '16
Motor trucks at steamship terminals. H. C. Hutchins and H. W. Perry. *il Int Marine Eng* 21:441-6 O '16
New dock of Buffalo Rochester & Pittsburgh Ry., at Buffalo Creek, N. Y. *il diag plan Ry R* 59:685-6 N 18 '16
New Jersey freight terminal for the port of New York. *il Eng N* 76:90 J1 13 '16
Ocean terminals under construction expected to make Halifax an important port. *il maps Eng Rec* 73:102-5 Ja 22 '16
Organization to study terminal problems. *Ry R* 59:76-7 J1 15 '16
Portable loading and unloading machines for marine terminals. H. Frost. *il diags Int Marine Eng* 21:452-4 O '16
Railway construction for new Halifax ocean terminals. *il Eng N* 75:188-9 Ja 27 '16
River terminals and a boulevard system for St. Louis. J. Pitzman. *Assn Eng Soc J* 55:184-93 N '15
River terminals projected for St. Louis. S. W. Bowen. *Eng N* 76:216-17 Ag 3 '16
Seattle's steamship terminals. G. C. Dohm. *il Int Marine Eng* 21:495-6 N '16
Status of cargo handling in American marine terminals. J. A. Jackson and R. H. Rogers. *Gen Elec R* 19:127-32 F '16
Subaqueous excavation at the Halifax ocean terminals. *il diag Eng N* 75:228-9 F 3 '16
Terminal railway and new piers at port of Philadelphia. *map Eng N* 76:260-1 Ag 10 '16
See also Docks; Freight handling; Locomotive terminals; Ports; Railroads—Terminals; Street railroads—Terminals
- Terminals, Locomotive.** See Locomotive terminals
- Terminals, Railroad.** See Railroads—Terminals
- Terminology.** See Technical terms; also subdivision Terminology under names of subjects, e.g. Electric wire and wiring—Terminology
- Ternary systems**
Ternary system $\text{CaO-Al}_2\text{O}_3\text{-MgO}$. G. A. Rankin and H. E. Merwin. *il diags Am Chem Soc J* 38:568-88 Mr '16
- Terrestrial magnetism.** See Magnetism, Terrestrial
- Test roads.** See Roads, Experimental
- Testing**
Activities of a railroad test department. C. D. Young. *Ry Age* 61:158-9 J1 28 '16
American society for testing materials abstracts of papers at 19th annual meeting. *Iron Age* 98:24-6, 64-6 J1 6 '16; *Iron Tr R* 59:33-8 J1 6 '16; *Eng N* 76:87-9, 135-6 J1 13-20 '16

Testing—Continued

- Equipment for testing at Carnegie institute of technology. W. Trinks. Iron Tr R 58:652-5 Mr 23 '16
- National physical laboratory. Engineer 122:53-4, 87-8 Jl 21-28 '16
- Principle of similitude in engineering design. T. E. Stanton. Engineer 122:356-7 O 20 '16
- Standard analyses and tests of non-bituminous road materials. Eng & Contr 45:114-16 F 2 '16
- Testing institute for heating and ventilating appliances, at the Berlin university. A. K. Ohmes. Heat & Ven 13:37-8 F '16
- See also Cement testing; Coal testing; Concrete—Testing; Electric testing; Engineering laboratories; Gas and oil engines—Testing; Gas testing; Laboratories; Machinery—Testing; Metals—Testing; Steam engines—Testing; Steel—Testing; Strains and stresses; Strength of materials; Testing machines; United States—Standards, Bureau of

Testing, Electric. See Electric testing

Testing, Magnetic. See Magnetic testing

Testing machines

- Combined fire and load tests of building columns. diag Eng N 74:1144-5 D 9 '15
- Device to measure deflection of test bars. H. L. Morse. il diag Iron Tr R 59:326-8 Ag 17 '16; Abstract. Eng Rec 74:50 Jl 8 '16
- Endurance and impact tests of metals. D. J. McAdam, jr. diag Eng N 76:283 Ag 10 '16
- Home-made testing machine uses water barrel weight. il Eng Rec 73:179 F 5 '16
- Latest improvements in Brinell hardness testing machines. il Met & Chem Eng 14:58-60 Ja 1 '16
- New freezing and thawing apparatus is automatic. plan Eng Rec 74:86 Jl 15 '16
- Scott tire fabric testing machine. il Textile World 51:753 Ja 15 '16
- Special strain gage has one-piece welded frame. il Eng Rec 74:194 Ag 12 '16; Eng & Contr 46:461 N 22 '16
- Speed of testing machines. G. B. Waterhouse. Iron Age 97:780 Mr 30 '16

Testing materials, American society for. See American society for testing materials

Tetrabromo-*o*-phenylenediacetamid

Tetrabromo-*o*-phenylenediacetamid. C. L. Jackson and S. A. Beggs. Am Chem Soc J 38:685-7 Mr '16

Tetrabromo-*o*-quinone

Certain derivatives of tetrabromo-*o*-quinone. C. L. Jackson and S. A. Beggs. Am Chem Soc J 38:676-85 Mr '16

Tetrahydroxynaphthalene

New case of tautomerism: 1, 4, 5, 6-tetrahydroxynaphthalene. A. S. Wheeler and V. C. Edwards. Am Chem Soc J 38:387-93 F '16

Tetranitromethylanilin

Sensitiveness to detonation of trinitrotoluene and tetranitromethylanilin. G. B. Taylor and W. C. Cope. U S Bur Mines Tech Pa 145:1-8 '16

Texas

Land surveying in Texas. J. M. Howe. map Eng N 76:753-4 O 19 '16

See also Geology—Texas; Railroads—Texas

Texas Midland railroad

Valuation report. Ry Age 61:195-6 Ag 4 '16

Textile alliance

Textile alliance and wool imports. Textile World 51:510+ Ja 15 '16

Textile design

- Adding overchecks to check patterns. Textile World 51:3549 Ag 12 '16
- Coloring white ranges. T. Welsh. il Textile World 51:2245 My 6 '16
- Designs for fancy cotton shirtings. il Textile World 51:137 D 11 '15

Textile fabrics. See Textile industry and fabrics

Textile factories. See Textile mills

Textile fibers

- Affinity of fibers in mixtures. Textile World 51:627+ Ja 15 '16
- Bacteriological retting for ramie, flax, etc. H. A. Carter. il Textile World 51:4831+ N 11 '16

Kapok—a new textile fibre. J. Boyer. il diag Sci Am S 81:120-1 F 19 '16

Nettle fiber. il Textile World 51:1303 Mr 4 '16

Textile fibres and their characteristics. K. B. Lamb. il Sci Am 114:56 Ja 8 '16

See also Cotton; Flax; Silk; Wool

Textile finishing

- Cotton and wool finishing processes. W. Harrison. Textile World 51:3371+ Jl 29 '16
- Finishing crashes. Textile World 51:285+ D 25 '15
- Finishing knitted alpaca coats. W. Davis. Textile World 51:1139 F 19 '16
- Textile starches; properties useful to mills. G. M. MacNider. il Textile World 51:5019+ N 25 '16
- Wrinkles in wet finishing. Textile World 51:1961+ Ap 22 '16

See also Cotton finishing; Textile printing; Waterproofing of textiles; Wool finishing

Textile industry and fabrics

- Aspects of commission business. G. D. Crain, jr. Textile World 51:679+ Ja 15 '16
- Canada's imports of textiles from the U. S. W. L. Edmonds. Textile World 51:3535 Ag 12 '16
- Fabric shields for protecting soldiers against shrapnel and bullets. il Sci Am 115:176 Ag 19 '16
- Great requirements of Russia; textile industries. W. Aisenman. Am Ind 17:27-31 N '16
- Necessity for an American dyestuffs industry to aid export trade in textiles. H. Howard. J Ind & Eng Chem 8:273-5 Mr '16; Same cond. Textile World 51:891+ Ja 29 '16
- Textile reconstruction of France. A. Renouard. Textile World 51:4445, 4525, 4720 O 14-21, N 4 '16
- Trade changes as result of war; government seeks information on expansion of textile industry. Textile World 51:2943+ Je 24 '16
- War orders benefit textile mills. il Textile World 51:509+ Ja 15 '16

See also Alpaca; Bandages and bandaging; Bedford cord; Bleaching; Braids; Calico painting; Calico printing; Carpets; Cassimere; Cotton; Cotton fabrics; Drying apparatus (for textile fabrics); Dyes and dyeing; Embroidery; Flax; Fulling; Fur fabric; Hosiery; Khaki; Knit goods; Lace; Leno; Linen; Mackinaw; Paper textiles; Ribbon; Serge; Shirting; Silk; Sizing (textiles); Spinning; Textile design; Textile fibers; Textile finishing; Textile machinery; Textile mills; Textile printing; Tire fabrics; Toweling; Underwear; Velour; Velvet; Vitrolite; Weaving; Wool; Woolen and worsted manufacture; Worsted; Yarn

Accounting

Methods of textile cost finding. W. A. Tucker. Textile World 51:511-12+ Ja 15 '16

Exhibitions

- Descriptions of exhibits at Boston textile show. il Textile World 51:2123-43 Ap 29 '16
- Textile show preparation. plan Textile World 51:1939+ Ap 22 '16

Law

- Misbranding legislation. Textile World 51:923 Ja 29 '16
- Why not a women's auxiliary to prevent unfair legislation? G. D. Crain, jr. Textile World 51:687+ Ja 15 '16

Societies

Southern textile association's annual meeting, Asheville, N. C., June 16-17. Textile World 51:2931-8 Je 24 '16

Standards

Standards of moisture in textile materials. J. A. Hunter. Textile World 51:2247+ My 6 '16

Testing

- Apparatus for showing effect of stress upon fabric being tested. diag Textile World 51:1775+ Ap 8 '16
- Solving the upholstery problem. il Automobile 34:270-1 F 10 '16

Textile industry and fabrics—Testing—Cont.

Testing cloth; abstract of papers at annual meeting of American society for testing materials. diags Eng N 76:135 JI 20 '16

Tire fabric and other testing requirements. W: D. Hartshorne. Textile World 51:2119+ Ap 29 '16

Textile law. See Textile industry and fabrics—Law**Textile machinery**

Automobile top fabrics. diags Textile World 51:4639+ O 28 '16

Blandin lock spool and bobbin painting machine. il Textile World 51:2339+ My 13 '16

Cloth conditioning apparatus. diag Textile World 51:297 D 25 '15

Counters for textile machinery. il Textile World 51:143 D 11 '15

Device for threading shuttles. diags Textile World 51:119 D 11 '15

Knit goods finishing machine. Textile World 51:2853 Je 17 '16

Latest development of the Cameron principle of slitting and rewinding. il Textile World 51:1233 F 26 '16

New machinery and processes. il diags Textile World 51:749+ Ja 15 '16

Washing or rinsing machine. diag Textile World 51:1313+ Mr 4 '16

See also Carding machines; Cotton machinery; Cutting machines (for textiles); Dyeing machines; Hosiery machines; Knitting machines; Looms; Pickers; Shuttles; Singeing machines; Spinning machinery; Spoolers; Tension devices (textile machinery); Thread guides; Twisting machines; Warping machines; Waste puller; Woolen and worsted machinery

Bibliography

Bibliography of textile machinery. H. H. B. Meyer. U S Bur For & Dom Com misc ser 37:91-8 '16

Exhibitions

Descriptions of exhibits at Boston textile show. il Textile World 51:2123-43 Ap 29 '16

Descriptions of exhibits at Philadelphia show. il Textile World 51:2479-91 My 20 '16

Safety devices and measures

Textile machinery safeguards. H. W. Nelson. Textile World 51:511 Ja 15 '16

Textile mills

Efficient lighting in textile mills. A. Walton. il Textile World 51:3195+ JI 15 '16

Electric lighting in textile plants. diag Textile World 51:4253 S 30 '16

Electric service in a cotton-duck mill, Woodberry, Md. il diag Elec W 67:252-4 Ja 29 '16

Heating by forced circulation of hot water in textile mills. A. G. Duncan. Power 43:128-31 Ja 25 '16; Same. Am Soc M E J 38:197-201 Mr '16; Same. Textile World 51:699-701, 703, 777 Ja 15 '16; Same cond. Metal Work 84:770-3 D 17 '15; Discussion. Am Soc M E J 38:201-2 Mr '16

Increasing the profits in flax mills. J. A. McCracken. il Sci Am 114:402+ Ap 15 '16

Industrial management in textile plants. W. C. Taylor. Textile World 51:2936-7 Je 24 '16

Mill ventilation without mechanical apparatus. H. L. Van Zile. Textile World 51:4147; Discussion. 4108+ S 23 '16

New spinning plant; plans prepared for S. B. & B. W. Fleisher new worsted mill. il Textile World 51:3449 Ag 5 '16

Progress in mill management. F. G. Cobb. Textile World 51:2936 Je 24 '16

Relative value of private and purchased electric power for textile mills. F. W. Reynolds, and D. Adams. Am Soc M E J 38:202-6 Mr '16; Same. Textile World 51:699, 713, 715, 779, 782 Ja 15 '16; Same cond. Power 43:90-2 Ja 18 '16; Discussion. Am Soc M E J 38:206-9 Mr '16; Excerpts. Textile World 51:2265+ My 6 '16

Repair shop for the textile mill. G. H. Perkins. il Textile World 51:1395+ Mr 11 '16

Report of mill construction for 1915. Textile World 51:717+ Ja 15 '16

Results of lighting arrangements in mill rooms. diags Textile World 51:3897+ S 9 '16

Striking a balance between speeds and costs.

H. D. Martin. Factory 17:263-4 S '16

Transmission losses cost money. G. D. Crain, jr. Textile World 51:57 D 4 '15

See also Cotton mills; Hosiery mills; Silk mills; Textile industry and fabrics

Textile patents

Artificial fibers. diag Textile World 51:895+ Ja 29 '16

Automatic cloth guide. diag Textile World 51:2947+ Je 24 '16

Shuttle smash preventer. diag Textile World 51:2339+ My 13 '16

See also Union suits—Patents

Textile printing

Development of roller printing machines. R. Sansone. diags Textile World 51:4629+ O 28 '16

Evolution in printing. il Textile World 51:1945+ Ap 22 '16

Textile schools

Relation of textile school to mills. T: Nelson. Textile World 51:3383 JI 29 '16

Textile soap. See Soap**Textile testing.** See Textile industry and fabrics—Testing**Textiles, Painting of.** See Painting of textiles**Thawing**

Experience in freezing of a subaqueous main laid in salt water and use of electricity to thaw out the main. W: W. Brush. Eng & Contr 46:37 JI 12 '16

Heating of dynamite thaw houses. diags Metal Work 85:514-15 Ap 14 '16

Making a dynamite thaw kettle from an oil can and a barrel. J. H. Carse. il Eng & Contr 45:91-2 Ja 26 '16; Same. Ry R 57:829 D 25 '15; Same. Eng & Min J 101:222 Ja 29 '16; Same. Eng Rec 73:28 Ja 1 '16

Mining the frozen gravels of the Arctic. H: M. Payne. il Sibley J 30:383-7 S '16; Excerpt. Eng & Contr 46:337 O 18 '16

St. Paul builds equipment for thawing frozen water pipes. il Eng Rec 73:328 Mr 4 '16; Elec W 67:658 Mr 18 '16

Thawing-out frozen nozzles. W. T. Dagnall. diag Foundry 44:136 Ap '16

Theater tickets

Specialty-printing problems and how to overcome them; numbering theater tickets. C. Martin. diag Inland Ptr 57:46-8 Ap '16

Theaters

Columns in first floor of Boston theater avoided by use of 106-foot truss. il diags Eng Rec 74:287-90 S 2 '16

Olympia theater, New Bedford, Mass. il plans Brickb 25:171-2, pl 109-12 JI '16

See also Auditoriums; Moving picture theaters; Stage mechanism

Heating and ventilation

Heating and ventilating Newark theater. il plans Metal Work 85:97-101 Ja 14 '16

Heating and ventilation of theater buildings. J. Graham. diags plans Dom Eng 73:428-31 D 25 '15

Placing warm-air registers in a concrete floor. A. C. Hewitt. il Eng N 75:375-6 F 24 '16

Ventilating a large Cincinnati theater. il diag Metal Work 85:467-8 Ap 7 '16

Stage scenery

Fire-proofing stage scenery. Sci Am S 81:51 Ja 22 '16

Therapeutics

See also Antiseptics; Bloodletting; Electromagnets—Therapeutic use; Electrotherapeutics; Mechanotherapy; Phototherapy

Thermalene

Production, properties and use of thermalene; abstract. diag Am Soc M E J 38:757 S '16

Thermit welding. See Welding**Thermochemistry**

Chemistry of furnace efficiency and air supply. C. E. Lucke and E. D. Thurston, jr. Sch Mines Q 36:326-30 JI '15

Thermochemistry—Continued

Thermal values of the fats and oils; the heat of bromination. J. W. Marden. diags J Ind & Eng Chem 8:121-6 F '16

See also Boiling points; Combustion; Dissociation

Thermocouples

Measurements of resistivity and thermal electromotive force of samples of calcium, aluminum, magnesium, alloys of aluminum and magnesium and the thermal e. m. f. curve of nickel vs. nichrome. E. F. Northrup. Met & Chem Eng 15:193-7 Ag 15 '16

Theory of temperature measurement by thermocouples of graduated size. E. F. Kingsbury. J Fr Inst 182:539-40 O '16

Thermodynamics

Available hearth heat of the blast furnace. A. L. Feild. Met & Chem Eng 14:377-9 Ap 1 '16

Calculation of turbine efficiency by use of Mollier diagram. H. A. Cozzens, jr. Elec W 67:93-4 Ja 8 '16

Concerning the exponent m in the equation for the expansion line of internal combustion engines; abstract. Münzinger. Am Soc M E J 38:86-7 Ja '16

Efficiencies of steam prime movers. F. O. Ellenwood. Sibley J 30:288-93 Je '16

High-pressure unaflow engine. R. Cramer. Sibley J 30:99-102 D '15

Higher steam pressures. R. Cramer. Am Soc M E J 38:28-30 Ja '16; Same. Power 42:843-6 D 14 '15; Discussion. Am Soc M E J 38:146-8 F '16

Reversed heat engine as a drying machine. P. J. Fox. J Ind & Eng Chem 7:1065-9 D '15; Abstract. Am Soc M E J 38:97-8 Ja '16

Steam needed by perfect engine. F. R. Low. table Power 44:642-3 N 7 '16

Thermodynamic properties of silver and lead iodides. H. S. Taylor. Am Chem Soc J 38:2295-310 N '16

See also Gas turbines; Steam; Steam engines

Thermometers and thermometry

Brown recording thermometer. il Am Gas Light J 105:238 O 9 '16; Elec W 68:730 O 7 '16; Iron Age 98:762 O 5 '16; Metal Ind n s 14:441 O '16; Met & Chem Eng 15:431-2 O 1 '16; Power 44:492 O 3 '16

Centigrade vs. Fahrenheit. Sibley J 30:245-6 My '16

History of the thermometer; agitation for adoption of the Centigrade scale as standard. E. McCullough. Eng & Contr 45:100-1 F 2 '16; Same. Eng Rec 73:222 F 12 '16

Our thermometer. P. Carus. Inland Ptr 57:689 Ag '16

Oxide resistance thermometer; abstract. S. L. Brown. Elec W 67:331 F 5 '16

Quartz resistance thermometer. il diag Power 44:582 O 24 '16

Shall we abolish the Fahrenheit thermometer? Sci Am 114:140 F 5 '16

Temperature scale of the Reichsanstalt and the standardization of temperature measurements. Holborn. Met & Chem Eng 13:966 D 15 '15

Testing thermometer protected from irregular air changes and drafts. J. C. Grindell. il Elec R & W Elec n 69:931 N 25 '16

Thermometer scales. A. McAdie. Sci Am S 82:282 O 28 '16

See also Pyrometers and pyrometry

Thermopiles

Absolute thermopile. W. W. Coblentz and W. B. Emerson. diag Elec W 67:945-6 Ap 22 '16

See also Thermocouples

Thermoregulators. See Thermostats

Thermos bottles

Recent vacuum bottle developments. il Sci Am 113:562+ D 25 '15; Same cond. J Fr Inst 181:301-2 F '16

Thermostats

Draft regulation and temperature control. il Metal Work 85:64 Ja 7 '16

Electric heating: its present position and future development. G. Wilkinson. diags Inst E E J 54:209-15; Discussion. 54:215-22 Ja 15 '16

Howard electric heat regulator. il Dom Eng 73:344 D 11 '15

Improved Sarco temperature control regulator. diag Power 44:242 Ag 15 '16

Simple apparatus for the accurate and easy determination of surface tension, with a metal thermoregulator for the quick adjustment of temperature. W. D. Harkins and F. E. Brown. il diags Am Chem Soc J 38:246-52 F '16

Sylphon thermostat test. diag Horseless Age 37:355+ My 1 '16

System of individual room temperature control. diag Heat & Ven 13:24-5 Je '16

Temperature governors for appliances. Albrecht. diags Gas Age 38:203-4 Ag 15 '16

Temperature regulation of heating systems. W. L. Durand. Metal Work 84:836 D 31 '15

Underwriters approve thermostat control. il Elec Ry J 47:509 Mr 11 '16

Thiazole

Action of certain acid reagents on the substituted ureas and thiazole. F. E. Dains, R. C. Roberts and R. Q. Brewster. Am Chem Soc J 38:131-40 Ja '16

Thickeners

Laboratory method for determining the capacities of slime-settling tanks. H. S. Coe and G. H. Clevenger. il diags Am Inst Min E Bul 111:597-625 Mr '16; Summary. Met & Chem Eng 14:398-9 Ap 1 '16

See also Dorr thickener

Thiobarbituric acid

Comparison of barbituric acid, thiobarbituric acid and malonylguanidine as quantitative precipitants for furfural. A. W. Dox and G. P. Plaisance. Am Chem Soc J 38:2156-64 O '16

Condensation of thiobarbituric acid with aromatic aldehydes. A. W. Dox and G. P. Plaisance. Am Chem Soc J 38:2164-6 O '16

Thiocyanates

Chlorides in presence of thiocyanates. F. W. Bruckmiller. Am Chem Soc J 38:1953-5 O '16

Researches on thiocyanates and isothiocyanates; ethyl isothiocyanacetate. T. B. Johnson and E. H. Hemingway. Am Chem Soc J 38:1550-7 Ag '16

Researches on thiocyanates and isothiocyanates; the utilization of tetrachloromethylmercaptan for the preparation of alkyl isothiocyanates. T. B. Johnson and E. H. Hemingway. Am Chem Soc J 38:1860-7 S '16

Thiohydantoins

Condensation of aldehyde diacetates and of phenylhydrazones with 2-thiohydantoin. B. H. Nicolet. Am Chem Soc J 37:2753-6 D 15 '15

5,5-dimethyl-3-R-2-thiohydantoins. J. R. Bailey and A. T. McPherson. Am Chem Soc J 38:2523-7 N '16

Thiophene

Victor Meyer—his life and work. B. Horowitz. J Fr Inst 182:386 S '16

Third rails

B. & O. electrification—third-rail protection at passenger stations. il diag Elec Ry J 47:1078 Je 10 '16

Boston Elevated reports on safety. diags Elec Ry J 47:652-3 Ap 1 '16

Clearance diagram for railway structures. Elec Ry J 47:698 Ap 8 '16

Maintenance of the Detroit tunnel electric zone. Elec Ry J 47:533 Mr 18 '16

Manchester to Bury electrification. il diags plans Engineer 121:125-8 F 11 '16

New bonding methods developed for 150-lb. third-rail. il diags Elec Ry J 48:1092-4 N 25 '16

New suburban electrification in England; Lancashire and Yorkshire railway. il diag Elec Ry J 47:439 Mr 4 '16

New type bond for third rail. H. H. Febrey. il diags Elec Ry J 48:282-3 Ag 12 '16

150-lb. third-rail for new lines of the Interborough in New York city. diag Elec Ry J 48:543 S 23 '16

Report of committee of American electric railway engineering association. diags Elec Ry J 48:823-4 O 14 '16

- Thompson, Silvanus Phillips, 1851-1916**
Sketch, por Elec W 67:1337 Je 17 '16; Illum Eng 9:145-6 Je '16; Am Inst E E Pro 35: suppl 7 J 1 '16; Sci Am 115:43 J 1 8 '16
- Thorium**
Atomic weights of thorium and ionium. O: Hönigschmid. Met & Chem Eng 13:966 D 15 '15
Introduction of electromagnetic separators marked increase in quality and quantity of monazite output. R. Gordon. il Am Gas Light J 105:17-19 J 10 '16
- Thought and thinking**
Economy in study. G: V. N. Dearborn. Sci Am S 81:374-5 Je 10 '16
- Thread cutting**
Calculating change-gears for fractional threads. Mach 22:989 J 1 '16
Change-gears for thread cutting. diag Mach 22:988 J 1 '16
Methods of threading; abstract. P. W. Abbott. Am Soc M E J 38:267 Mr '16
Rickert-Shafer automatic threading die. il diags Mach 22:714 Ap '16
Thread milling in the lathe. E. T. Spidy. il diags Mach 22:715 J 1 '16
- Thread cutting machines**
Landis hollow set screw threading machine. il Iron Age 98:989 N 2 '16; Iron Tr R 59: 888 N 2 '16; Ry Mech Eng 90:604 N '16
Lees-Bradner shell thread milling machine. il Mach 22:337 D '15
Screw thread milling machine. il Iron Age 98:574 S 14 '16
Smalley-General thread milling machine. il Mach 22:720-1 Ap '16
Taft-Peirce thread milling machine. il diags Mach 22:520-2 F '16
- Thread guides**
Improved thread guide. diags Textile World 51:1311+ Mr 4 '16
- Threading machines.** See Thread cutting machines
- Thrift.** See Saving
- Ticket selling machines**
Electrically operated ticket vender and cash register. il Elec R & W Elec'n 68:347 F 19 '16
- Tickets**
Manufacture of roll tickets. C. Martin. Inland Ptr 57:186-8 My '16
See also Railroads—Tickets
- Tickler files**
Journal entry tickler. E. L. Kasemeier. Elec Ry J 46:1168-9 D 11 '15
- Tide predictors**
32-element harmonic synthesizer. D. C. Miller. bibliog il diags J Fr Inst 181:52-4 Ja '16
- Tides**
Oceanic tides with special reference to the work of the United States coast and geodetic survey. C: L. Poor. Sci Am S 81:398 Je 17 '16
- Tie plates, Railroad.** See Railroad tie plates
- Tie plugs.** See Railroad tie plugs
- Ties, Railroad.** See Railroad ties
- Ties, Steel.** See Railroad ties, Steel
- Tile, Concrete.** See Concrete tile
- Tile, Drain.** See Drain tile
- Tile, Hollow.** See Hollow tile
- Timber**
Artificial seasoning of timber. O. Craig. Sci Am S 81:395 Je 17 '16
City engineer defines quality of lumber to use. Eng Rec 74:85 J 15 '16
Definition of knots in wood by the American society for testing materials. Eng & Contr 45:571 Je 21 '16
Diagram for obtaining number feet B. M. in various timbers. W. R. Roof. Eng & Contr 46:453 N 22 '16
Dry rot in factory timbers. J. W. H. Myrick. il Textile World 51:1885 Ap 15 '16
Engineering bulletins on structural timber. Ry R 58:400-1 Mr 18 '16
Engineers and architects want branded timber. F. D. Chase. Eng Rec 73:825-6 Je 24 '16
Forest service proposes Douglas fir grading rule. Eng Rec 73:212-13 F 12 '16
Greenheart timber for canal and harbor works. H: Goldmark. Eng Rec 73:330 Mr 4 '16
Greenheart, used in Panama canal, is a timber with exceptional qualities. A. K. Armstrong. Eng Rec 73:149-50, 180-1 Ja 29-F 5 '16; Abstract. Eng M 50:338 Mr '16
Heartwood specification and density rule. E. A. Schmitt. Eng Rec 74:630 N 18 '16
Heartwood specification needed to get best-grade timber. Eng Rec 74:519 O 28 '16
Lectures on structural timber at University of Wisconsin. Eng N 75:637 Ap 6 '16
Measuring and marketing woodlot products. W. R. Mattoon and W: B. Barrows. il diags U S Agric Farmers' Bul 715:1-48 '16
Monumental timber bunding endangered by rot. il Eng N 74:1221 D 23 '15
New rule for grading southern pine timbers. H. von Schrenk. Ry R 58:266-7 F 19 '16
Sanitary handling of timber. Bldg Age 38:41 My '16
Specification for fir bridge timbers proposed. Eng Rec 74:70-1 J 15 '16
Unit stresses for timber; manufacturers' table. Eng N 76:273 Ag 10 '16
Woods used by the railroads. H. F. Weiss. Ry Age 61:358 S 1 '16
Yellow-pine timber graded without guesswork. H. von Schrenk. Eng N 75:368-9 F 24 '16
See also Building materials; Forests and forestry; Greenheart; Lumber; Lumbering; Pine; Trees; Wood; Woodlots
- Testing**
See Wood—Testing
- Timber insurance.** See Insurance, Forest
- Timber joints.** See Joints
- Timber preservation.** See Wood preservation
- Timbering**
Lignum-vitae for tunnel sets. Eng & Min J 102:878 N 11 '16
See also Mine timbering
- Timbering, Mine.** See Mine timbering
- Time**
Eastern and central time standards in Ohio and Michigan. M. E. Wells. map Ry Age 60: 201-2 F 4 '16
Universal time. Sci Am 114:444 Ap 29 '16
See also Calendar
- Time keeping**
Decimal unit. B. Daniels. Inland Ptr 58:227-8 N '16
Foremen keep time and deductions on small scattered jobs. F. D. Buffum. Eng Rec 74:302 S 2 '16
Machine-made time figures. il Factory 16:332-4 Ap '16
Time-saving time system. T: J. Walsh. Iron Age 97:1309 Je 1 '16
- Time measurement**
Timing relay operation with a rotating standard. W. H. Fellows. diags Elec W 68:80-1 J 1 8 '16
- Time study**
Drill- and tool-sharpening shop at the Copper Queen mine. Eng & Min J 101:1103-4 Je 24 '16
How scientific management works; making time studies. C. B. Thompson. il Factory 16: 128-31 F '16
How scientific management works; the stop watch as inventor. C. B. Thompson. il Factory 16:224-7 Mr '16
Machining 9.2-in. high-explosive shells. G. F. Bryant. diags Iron Age 98:238-40 Ag 3 '16
Materials vs. methods—testimony of moving pictures in the study of concrete. N. C. Johnson. il Eng Rec 72:684-7 D 4 '15
Silberberg master chronograph. il Automobile 34:329 F 17 '16; Elec R & W Elec'n 68:478-9 Mr 11 '16; Elec W 67:393-4 F 12 '16; Iron Age 97:294 F 3 '16; Iron Tr R 58:296 F 3 '16
Steam shovel excavation in shallow cuts. T. J. Ferrenz. il Eng & Contr 46:254 S 20 '16
Time study eliminates costly details of design. D. Patch. Eng Rec 73:749-50 Je 3 '16
Tunnel lining by compressed air mixing and placing. il diags Eng & Contr 45:33-4 Ja 12 '16
- Timepieces.** See Clocks; Watches

Tin

- Analysis of tin ores. T. F. Golick. Eng & Min J 102:827 N 4 '16
 Chemistry in the brass foundry. E. P. Later. Foundry 44:434-6+ O '16
 Crystal twinning by direct strain. C. A. Edwards. il diags Iron Tr R 58:341-5 F 10 '16;
 Abstract. Am Soc M E J 38:264-5 Mr '16
 Electro-analytical method for the determination and separation of the metals of the copper-tin group. E. P. Schoch and D. J. Brown. diags Am Chem Soc J 38:1660-81 S '16
 New York tin market. Eng & Min J 101:66-7 Ja 8 '16
 Review of the tin situation. L. Addicks and W. A. Cowan. Iron Age 98:50-1 Jl 6 '16;
 Same. Metal Work 86:46 Jl 14 '16; Same. Foundry 44:327-8 Ag '16
 Separation of the metals of the tin group. J. M. Welch and H. C. P. Weber. Am Chem Soc J 38:1011-16 My '16
 Tin in Bolivia. Eng & Min J 101:67 Ja 8 '16
 Tin in canned foods. W. D. Bigelow. J Ind & Eng Chem 8:813-15 S '16
 Tin in Lander county, Nevada. Metal Work 86:278 S 1 '16
 Tin in Malay states. Metal Work 85:4 Ja 7 '16
 Tin ore for smelting. Metal Work 85:183 F 4 '16
 Tin production in Siam. Eng & Min J 102:582 S 30 '16
 Volumetric determination of tin by potassium iodate. G. S. Jamieson. J Ind & Eng Chem 8:500-2 Je '16
 Wood tin in the tertiary rhyolites of northern Nevada. A. Knopf. il Econ Geol 11:652-61 O '16
See also Bronze; Tin metallurgy; Tin mines and mining; Tin plate; Tinning

Tin metallurgy

- Combined hydraulic and mechanical classifier. M. G. F. Sohnlein. diags plan Am Inst Min E Bul 112:715-20 Ap '16; Excerpts. Met & Chem Eng 14:538 My 1 '16
 Economic extraction of tin and tungsten from Cornish ores. Engineer 121:280-1 Mr 31 '16
 Electrolytic refining of tin—a new American industry. Elec R & W Elec'n 68:507 Mr 18 '16
 Tin from chloride, patented by F. Meyer and H. Kerstein. diag Met & Chem Eng 15:102-3 Jl 15 '16
 Tin smelting at Perth Amboy. N. J. R. H. Vail. plan Eng & Min J 101:927-9 My 27 '16
 Tin smelting in the United States. Metal Ind n s 14:167 Ap '16
 Tin smelting in United States. Eng & Min J 101:67 Ja 8 '16

Tin mines and mining

- Amenities of Bolivian mining. M. R. Lamb. il Eng & Min J 102:81-4 Jl 8 '16
 Patiño tin mines, Bolivia. B. L. Miller and J. T. Singewald, jr. il Eng & Min J 102:451-5 S 9 '16
 Silver-tin mining in Bolivia. J. T. Singewald, jr., and B. L. Miller. il Eng & Min J 102:533-5 S 23 '16
 Victoria tin operation. il Eng & Min J 101:347 F 19 '16

Tin plate

- Largest tin plate plant in world, McKeesport, Pa. C. F. Williams. il plan Iron Tr R 58:53-6 Ja 6 '16
 Metal, tin-plate and sheet prices for eighteen years; with supplement. Iron Age 97:22 Ja 6 '16
 Opening of a remarkable tin plate season. Metal Work 86:501 O 20 '16
 Sheet and tin-plate trades in 1915. B. E. V. Luty. Iron Age 97:11-12 Ja 6 '16
 Tin-plate and terne-plate production. Metal Work 85:743 Je 2 '16

Tinning

- Peptone as an addition agent in stannous ammonium oxalate baths. F. C. Mathers and B. W. Cockrum. Metal Ind n s 14:252-3 Je '16
 Retinning copper ware. Metal Work 84:714-15 D 3 '15
 Tests of tin plating baths. F. C. Mathers and B. W. Cockrum. Metal Ind n s 14:200-1 My '16; Same. Iron Tr R 59:839-40 O 26 '16

Tipples. *See* Mine tipples

Tire fabrics

- Knitted tire fabric. il Textile World 51:3295 J1 22 '16
 Weaving tire fabric in strips. il Textile World 51:4193 S 23 '16

Testing

- Scott tire fabric testing machine. il Textile World 51:753 Ja 15 '16
 Standardization of automobile tire fabric testing. W. S. Lewis and C. J. Cleary. il diags U S Bur Stand Tech Pa 68:1-18 '16
 Tests for tire fabrics. Textile World 51:98. F 5 '16
 Tire fabric and other testing requirements. W. D. Hartshorne. Textile World 51:2119+ Ap 29 '16

Tire pumps

- Electrically driven tire pump. il Elec R & W Elec'n 67:1036 D 4 '15; Elec W 66:1443 D 25 '15
 Motor-driven garage pump. il Elec W 67:672 Mr 18 '16

Tire rims. *See* Automobiles—Wheels

Tires

- Steel-tire removal. R. R. Potter. il Elec Ry J 47:1006 My 27 '16

Tires (automobile)

- Applying truck tires with a press. il Sci Am 114:661 Je 24 '16
 Carelessness the cause of many tire troubles. il Horseless Age 36:448 N 15 '15
 Causes of truck tire breakdown. il Munic Eng 51:17-18 Jl '16
 Common abuses that shorten the life of motor truck tires. A. H. Leavitt. il Eng & Contr 45:366-7 Ap 19 '16
 Construction of cord tires. J. H. Wagenhorst. Horseless Age 37:469 Je 15 '16
 Cushioning the truck tire. il Sci Am 114:406 Ap 15 '16
 History of the pneumatic tire. D. Beecroft. Automobile 34:815, 856, 901, 946, 936, 1085, 1132, 1171; 35:29, 71, 109, 143, 194, 240, 280, 326 My 4-Je 1, Je 15-Ag 24 '16
 Insuring maximum service. il Horseless Age 36:534 D 15 '15
 Is it profitable to sell tires? il Horseless Age 38:508-9+ J1 1 '16
 New spring cushion tire. il Sci Am 115:481-2 N 25 '16
 Oversize tire advantages. C. E. Manierre. Automobile 34:194 Ja 27 '16
 Pneumatic tire and rim situation. J. E. Hale. diags Automobile 35:64-7 Jl 13 '16
 Prolonging the life of automobile tires. Automobile 34:465-6 Mr 9 '16
 Reclaimed scrap vs. cheap new rubber. Automobile 33:1108-7 D 16 '15
 Relation of load per wheel to tire inflation. C. E. Manierre. Automobile 34:418-19 Mr 2 '16
 Rubber industry. A. H. King. diags Met & Chem Eng 14:74-5 Ja 15 '16
 Schrader tire accessories. il Horseless Age 38:357 N 15 '16
 Tire and rim accessories. il Horseless Age 37:223-4 Mr 15 '16
 Tire companies increase activity. Automobile 35:881-4 N 23 '16
 Tire industry. Automobile 35:879-81 N 23 '16
 Traveller puncture-proof tire. il diags Automobile 33:1022-3 D 2 '15
 Truth about colored rubber. W. Norris. il Horseless Age 37:453-5 Je 15 '16; Same. Sci Am S 82:187 S 16 '16
 Weaver universal tire changer. il Horseless Age 38:281 O 15 '16
See also Tire fabrics; Tire pumps

Repair

- Vulcanizers. il Horseless Age 37:216-18 Mr 15 '16

Tires (locomotive)

- Expanding mandrel for turning locomotive tires. E. J. Brewster. diags Ry Mech Eng 90:37-8 Ja '16
 Strength and wear of locomotive tires. E. L. Ahrons. Engineer 121:411-12, 455-6 My 19, Je 2 '16
 Tire turning; submitted by the General foremen's association. Ry R 59:320-1 S 2 '16

Tirrill regulator

Electrification of isolated factories. plans Engineer 121:172-4 F 25 '16

Titanium

High titanium products from ilmenite. R. Hesse. Eng & Min J 102:832 N 4 '16

How ferro-carbon titanium is used. Iron Tr R 59:266 Ag 10 '16

Manufacture of large forging ingots. R. C. Woodward. diags Iron Age 97:1138-40 My 11 '16

Use of ferro-titanium in cast steel. Foundry 44:105-6 Mr '16

Use of titanium in steel castings. W. A. Janssen. il Iron Tr R 59:507-11 S 14 '16; Abstract. Iron Age 98:696-7 S 28 '16; Discussion. Iron Age 98:646, 673 S 21 '16

Title pages

Correct placing of groups on the page. J. L. Frazier. il Inland Ptr 57:497-8 Jl '16

Titration. See Volumetric analysis**Titration (water measurement). See Water flow****Toads**

Beneficent toad. Sci Am 113:514 D 11 '15

Tobacco

Chemical changes in the resweating of seed-leaf tobacco. H: R. Kraybill. J Ind & Eng Chem 8:336-9 Ap '16

Tobacco. Physiological effects of

Effect of tobacco on the heart. Sci Am 113:523 D 11 '15

Tobacco beetle

Scientific annihilation of the tobacco beetle. R. G. Skerrett. Sci Am 115:319 O 7 '16

Tod, David, 1803-1868

Ohio's second war governor. por Iron Tr R 59:379 Ag 24 '16

Toilet rooms

Improved sanitary lavatory installation. T: J. Claffy. il Dom Eng 73:432-3 D 25 '15

Plumbing work in department store rest room. il diag plan Metal Work 85:243-7 F 18 '16

Sanitary conveniences for soldiers. diag plan Metal Work 86:7-8 Jl 7 '16

Sanitary equipment of gas plant wash room. il plan Metal Work 85:231-2 F 25 '16

Sanitary equipment of industrial buildings. H. L. Alt. diags Brickb 25:243-6 S '16

See also Lavatories; Public comfort stations; Schoolhouses—Toilet rooms; Urinals; Water closets

Tokyo, Japan**Railroads**

Central railway station. C: Potter. il Eng N 74:1214-15 D 23 '15

Toledo, Ohio**Industries and resources**

Toledo—second automobile city. L. V. Spencer. il Automobile 34:347-52 F 24 '16

Sanitary affairs

Efficient plumbing systems for small houses. plans Metal Work 84:839-41 D 31 '15

Toledo, St. Louis & Western railroad

Abstract of annual report for 1916. map Ry Age 61:787-8 N 3 '16

Toluene

Manufacture of gasoline and benzene-toluene from petroleum and other hydrocarbons. W. F. Rittman. C. B. Dutton and E. W. Dean. il diags U S Bur Mines Bul 114:1-214 '16; Abstract. J Ind & Eng Chem 8:351-61 Ap '16

Nitration of toluene. E. J. Hoffman. Met & Chem Eng 14:467-8 My '16

Thermal reactions in the vapor phase of various coal tar oils and distillates. W. F. Rittman and G. Egloff. Met & Chem Eng 14:15-18 Ja 1 '16

Use of catalytic agents in English toluene production has met with success. D. R. Wattlesworth. Am Gas Light J 105:39 Jl 17 '16

Utilization of aromatic hydrocarbons derived from cracked petroleum. W. F. Rittman. J Ind & Eng Chem 7:1014-19 D '15

Bibliography

Recovery of benzene, toluene, and related products from coal distillation. M. S. Howard. U S Bur Mines Bul 114:215-35 '16

Tombs

Manufacture and sale of concrete burial vaults. Concrete Cem 7:206-7 D '15
Mausoleums. il Am Inst Arch J 4:346-7 Ag '16
Tomb of Perneb. R: F. Tach. il diag plans Arch Rec 39:495-8 My '16

Tonnage, Train. See Railroads—Train load**Tonopah, Nevada**

Geology and ore-deposition at Tonopah. J. E. Spurr. il pls Econ Geol 10:713-69 D '15

Tonoscope

Letting the eye train the voice; a new instrument that shows a singer whether he is true to pitch. L. E. Dodd. il Sci Am 115:410-4 N 4 '16

Using the eye instead of the ear in the training of a musician. C. E. Seashore. il Sci Am 114:506 My 13 '16

Tool foremen's association, American railway. See American railway tool foremen's association**Tool holders**

Collet holder for spring dies. il Iron Age 96:1523 D 30 '15

Special tool holder for broken drills. W. C. Stephenson. diags Ry Mech Eng 90:44 Ja '16

Tailstock drill-holder. C. H. Anderson. diags Mach 22:335 D '15

Tool steel

Abstract of an interim report presented by Dempster Smith on behalf of the Tool research committee of the Manchester association of engineers. Am Soc M E J 38:751-2 S '16

Carbon and high-speed steel; abstract of papers by G: W. Kelly, J. J. Connors and D. M. Dulin. Ry Age 61:318-19 Ag 25 '16; Same with discussion. Ry Mech Eng 90:466-7 S '16
Character of high speed tool steel. F. C. A. H. Lantsberry. Iron Tr R 58:487-9 Mr 2 '16

Effect of chromium and tungsten upon the hardening and tempering of high-speed tool steel; abstracts, with discussion. C. A. Edwards and H. Kikkawa. Engineer 120:313-14 O 1 '15; Iron Age 96:1126-7 N 11 '15; Metal Work 84:819-20 D 24 '15

Efficiency of tool steels. J. O. Arnold. Iron Age 97:1207 My 18 '16; Same. Iron Tr R 59:21 Jl 6 '16; Same. Sci Am S 82:71 Jl 29 '16; Same, with discussion. Engineer 121:397-8 My 12 '16
German high speed steel. Iron Age 98:1111 N 16 '16

Grinding of high speed steels. C. E. Gillett. il Iron Tr R 59:679-81 O 5 '16

High-speed steel alloy without tungsten. Elec R & W Elec'n 69:81 Jl 8 '16

Manufacture and uses of alloy steels. H: D. Hibbard. U S Bur Mines Bul 100:53-67 '15; Same cond. Ry R 58:840-4 Je 10 '16

New high-speed steels; abstract. Am Soc M E J 38:595-6 Jl '16

Tool-steel trade. Iron Age 97:110 Ja 6 '16

Tool steel trade-names; compilation of distinctive brands of tool and high-speed steels. Mach 22:459-60 F '16

Uranium high-speed steel tests. Mach 23:142 O '16

Uranium in tool steel. Iron Age 97:952 Ap 20 '16; Same. Eng & Min J 102:224 Jl 29 '16; Same. Ry Mech Eng 90:540 O '16

Welding high-speed steel blocks to tool steel shanks. diags Mach 22:979 Jl '16

Welding high-speed steel electrically. F. Warren. il diags Mach 22:789-90 My '16

See also Machine tools; Steel metallurgy

Tools

See also Chisels; Files and rasps; Machine tools; Machinery; Railroads—Tools and implements; Saws; Shovels; Square (instrument); Tool steel; Wrenches

Tools, Machine. See Machine tools**Tools, Pneumatic. See Pneumatic tools****Topographical surveying**

Combination of plane table and transit for topography. C. O. Sherrill. Eng N 76:905 N 9 '16

Combination of plane table and transit for topography. H. T. Johnson. diag Eng N 76:488-90 S 14 '16

New topographic survey methods for rapid work. J. H. Bonner and F. E. Bonner. il Eng N 75:24-7 Ja 6 '16

Topographical surveying—Continued

- Photogrammetry for taking topography of watershed. D. H. Nelles. *il Eng N 76:878-80 N 9 '16*
 Photographs from aeroplanes for reconnaissance. aids. *Eng Rec 74:586 N 11 '16*
 Power and irrigation project for the Big Horn Canyon. *diags Ry R 59:440-2 S 30 '16*
 Surveying dam sites in the Grand Canyon. *il Eng N 76:306-7 Ag 17 '16*
 Surveying 1000 square miles with the camera. *il Eng Rec 74:102-3 J1 22 '16*
 Topographic survey of rough wooded area. *Eng Rec 73:459-60, 652-3 Ap 1, My 13 '16*
 Unusual methods simplify topographic survey of rough wooded area. R. E. Davis and W. H. Rayner. *Eng Rec 73:316-17 Mr 4 '16*
See also Plane table

Torches

- Home-made alcohol torch. R. Patterson. *diag Elec R & W Elec'n 69:933 N 25 '16*
 Home-made rear-end torch. C. J. Fuetter. *il Coal Age 9:1081 Je 24 '16*

Toronto, Ontario**Bridges**

- Bloor-street viaduct, Toronto. *il map Engineer 122:394, 398-9 N 3 '16*

Harbor

- Large suction dredges depend on high velocity for extraordinary output. *il diags plans Eng Rec 73:517-20 Ap 15 '16*

Sewerage

- Design and construction of tanks for temporary storage of storm water at Toronto, Ontario. W. G. Cameron. *diags Eng & Contr 45:90-1 Ja 26 '16*

Water supply

- Drifting-sand water filters for Toronto, Ont. *il diags plan Eng N 76:566-70 S 21 '16*

Toronto, University of

- University of Toronto central heating and power plant. L. M. Arkley. *diag plan Power 44:516-17 O 10 '16*

Torpedo boat destroyers

- Description and trials of the United States torpedo boat destroyer Cushing; abstract. O. L. Cox. *Int Marine Eng 21:260 My '16*
 Torpedo boat destroyer Ericson; abstract. W. H. A. Lange. *Int Marine Eng 21:85 F '16*
 U. S. S. Wadsworth. *Int Marine Eng 21:33 Ja '16*

Torpedo boats

- See also Submarine boats; Torpedo boat destroyers*

- Torpedo screen for ships under way. J. B. Flowers. *il Sci Am 115:406+ N 4 '16*

Torpedo tubes

- Rapid-fire revolver principle applied to the submarine torpedo tube. E. Cerio. *il diags Sci Am 114:395+ Ap 15 '16*
 Torpedo tubes in large warships. *Engineer 121:441-2 My 26 '16*
 Torpedo tubes; the mechanisms used above and below the surface. *il Sci Am S 81:149 Mr 4 '16*

Torpedoes

- Man-controlled torpedo. *il Sci Am 115:393 O 28 '16*
 New form of the fighting aircraft. R. G. Skerrett. *il Sci Am 113:513+ D 11 '15*
See also Mines, Submarine

Torsion

- Shafts for torsional stiffness. B. D. Pinkney. *Mach 22:794 My '16*

Towboats

- New tugs for Central railroad of N. J. A. A. Norton. *il diag plans Int Marine Eng 21:56-8 F '16*
 Tug Pocahontas launched at the Norfolk navy yard. *il Int Marine Eng 21:241 My '16*

Towels

- Losses in bleaching cotton toweling goods. *Textile World 51:3729 Ag 26 '16*
 Losses in bleaching union and linen towels. *Textile World 51:4629 O 28 '16*
 Weaving jacquard Turkish towels. *Textile World 51:2165 Ap 29 '16*

Towers

- Bell tower and ventilator details; an example of English practice. *diags Bldg Age 38:27-8 Mr '16*
 Campanile at Berkeley is completed. *il (cover) Eng Rec 74:627 N 18 '16*
See also Water towers

Towers, Portable

- Electrically-driven tower wagons on the Bay State street railway. *il Elec Ry J 47:179 Ja 22 '16*
 Keeping track of an emergency wagon. *il Elec Ry J 47:705-6 Ap 8 '16*
 Louisville line truck. *il Elec Ry J 48:505 S 16 '16*
 Overhead construction—tools, specifications and tests. C. R. Harte. *il plan Elec Ry J 47:534-8 Mr 18 '16*
 Three-section tower wagon. *il Elec Ry J 47:136-7 Ja 15 '16*

Towers, Steel

- Collapse of a municipal lighting tower at San Jose, Cal. *il Sci Am 114:103 Ja 22 '16*
 Design of Darien radio towers. C. A. Carlson. *il diags Eng N 75:546-9 Mr 23 '16*
 Erecting steel transmission towers with gin-pole. L. R. Allison. *diags Eng N 76:752-3 O 19 '16*
 Erecting the Canacao radio towers. *diag Eng N 76:320 Ag 17 '16*
 Falsework complicates setting of pins for large wireless tower. P. E. M. Wheat. *il diag Eng Rec 74:34-5 J1 15 '16*
 Steel lighting tower San José, Cal., fails after 34-yr. service. *il Eng N 75:279-80 F 10 '16*

Towers, Transmission

- Erecting steel transmission towers with gin-pole. L. R. Allison. *diags Eng N 76:752-3 O 19 '16*
 Tower foundations for a transmission line between Niagara Falls and Toronto; abstracts. F. C. Connery. *diag Elec W 66:136 J1 17 '16*
 Eng & Contr 46:435-6 N 15 '16

Toys

- Filipino toys. A. R. Brane. *il Sci Am S 82:4-5 J1 '16*
 Wooden dog that comes when you call. *il Sci Am 115:417 N 4 '16*

Toys, Electric. See Electric toys**Trachoma. See Conjunctivitis****Track. See Electric railroads—Track; Mine tracks; Railroads—Track; Rails; Street railroads—Track****Track elevation. See Railroads—Track elevation****Track scales**

- Calculation of scale members. E. Motchman. *diags Ry R 59:418-19, 460-2, 527-9 S 23-30, O 14 '16*
 Capacity of a railroad track scale. H. L. Van Keuren. *Ry Age 60:491 Mr 17 '16*
 Designing a scale to order. E. Motchman. *diags Ry R 58:572-4, 605-7, 668-70 Ap 22-29, My 13 '16*
 Largest railroad track scale in the world. *il diags Ry Age 60:305-7 F 18 '16*
 Plate fulcrum track scale. *il Ry Age 59:1156-7 D 17 '15*
 Plate fulcrum track scale; abstract. A. W. Ep-right. *Am Soc M E J 38:91 Ja '16*
 Recent development in heavy track scale construction. J. H. A. Bousfield. *diags Am Soc M E J 38:836 O '16*
 Track-scale specification. *Eng N 75:365 F 24 '16*
 Value of the railroad scale inspector to his company. A. M. Van Auken. *Ry R 59:49-50 J1 8 '16*

Testing

- Long and short wheel base test cars. C. A. Briggs. *il Ry Age 60:903-5 Ap 21 '16*
 Testing and adjusting track scales by the graphical method. C. A. Briggs. *diags Ry R 59:77-81 J1 15 '16*

Track shifter

- Useful track shifter. L. A. Rossman. *il Eng & Min J 102:940 N 25 '16*

Track wrenches. See Wrenches**Trackless trolley**

- Trackless-trolley battery vehicle. *il Elec R & W Elec'n 69:16 J1 1 '16*

Trackless trolley—Continued

- Trackless trolley bill passed in Massachusetts.
Elec Ry J 47:1057 Je 3 '16
Trackless trolley vs. motor omnibus. Elec Ry
J 47:442 Mr 4 '16

Tracks, Concrete. See Concrete tracks**Tracks, Mine.** See Mine tracks**Tracks, Portable**

- Tracks for heavy excavators on river diversion. il diags Eng N 76:76 Jl 13 '16

Tracks, Railroad. See Electric railroads—Track; Railroads—Track; Street railroads—Track**Traction engines.** See Tractors**Tractive effort**

- Tractive effort of overhead travelers; abstract. G. H. Boot. diags Am Soc M E J 38:1032 D '16

Tractive resistance

- Testing highway characteristics with the electric vehicle. D. C. Jackson. Elec W 68:14 Jl 1 '16; Abstract. Eng & Contr 46:203-4 S 6 '16
Tractive resistances to a motor delivery wagon on different roads and at different speeds. A. E. Kennelly and O. R. Schurig. bibliog il diags Am Inst E E Pro 35:1011-39 Je '16

Tractor industry

- Logical tractor dealer. A. H. Bartsch. il Horseless Age 38:105-7+ Ag 15 '16

Tractor trains

- Motor road train. Sci Am S 82:228 O 7 '16

Tractors

- Advantages of caterpillar tractors. il Automobile 35:184-7, 233-4 Ag 3-10 '16
American gasoline tractor. il Good Roads n s 12:167 O 7 '16
Automobile practice in tractor design. A. L. Clayden. il diags Automobile 35:434-7 S 14 '16
Bates steel mule with flexible crawler. il Horseless Age 37:268-9 Ap 1 '16
Benzine tractor for railway and road service. il Sci Am 113:559 D 25 '15
British favor gasoline tractor. Automobile 35:749 N 2 '16
Bulkeley-Rider road locomotive. il Automobile 34:984 Je 1 '16
Caterpillar backfiller for trench work. il Eng N 75:898-9 My 11 '16
Coming of the motor plough. il diag Engineer 120:408-10, 476-8, 630-1 O 29, N 19, D 31 '15
Comparative costs of hauling gravel by team and by tractor for road work. O. L. Kipp. Eng & Contr 45:327-9 Ap 5 '16; Same. Munic Eng 50:138-9 Ap '16; Abstract. Eng N 75:567-8 Mr 23 '16
Data on farm tractors. Automobile 33:1098-1100 D 16 '15
Development in commercial vehicle design. il Sci Am 114:40 Ja 1 '16
Development of the farm tractor. S. H. Bunnell. il Iron Age 98:884-6 O 19 '16
Ditching with capstan plows. il Eng N 75:226-7 F 3 '16
Farm tractor. C. M. Eason. Automobile 34:1034-5 Je 8 '16
Farm tractor requirements. C. M. Eason. Horseless Age 37:316 Ap 15 '16
Farm tractors. P. S. Rose. Sci Am S 81:282-3 Ap 29 '16; Same cond. Horseless Age 35:799-800 Je 16 '15; Abstract. Eng M 49:750-2 Ag '15
Fascination in tractor design. A. L. Clayden. Automobile 35:348-9 Ag 31 '16
Ford light-weight gas tractor for the farm. il Sci Am 114:80 Ja 15 '16
French power ploughing trials. Engineer 120:570-1, 591-2, 618-20 D 17-31 '15
Future for light-weight tractor. M. C. Krarup. Automobile 34:277, 363-4 F 10, 24 '16
Gasoline tractor developed in power ditching. F. C. Perkins. il Eng Rec 74:134 Jl 29 '16
Hauling California lead ores with a Yuba tractor. il Eng & Min J 101:554 Mr 25 '16
Hauling structural steel in New York city. il Eng & Contr 46:8 Jl 5 '16
Horsepower curves for tractors. B. W. Moses. Automobile 35:939 N 30 '16
Internal-combustion motor for traction engines. A. A. Potter and W. A. Buck. Am Soc M E J 38:886-8 N '16

- Kerosene tractors in road-building work. il Munic J 41:367-8 S 21 '16
Mayer Little Giant agricultural tractor. il Horseless Age 37:352-3 My 1 '16
Megow attachment converts car into tractor il Automobile 35:887 N 23 '16
Modern agricultural tractor designs. V: W. Pagé. il Sci Am 115:100-1 Jl 29 '16
Moving structural steel with tractor. il Sci Am 114:406 Ap 15 '16
New tractor and trailer made by Watson wagon co. il Good Roads n s 12:165 O 7 '16
New trucks show progress. il Automobile 34:229-30 F 3 '16
90,000 people see Ford tractors at Fremont, Neb. Automobile 35:255+ Ag 17 '16
Plowing drainage ditches. F. C. Perkins. il Sci Am S 82:228 O 7 '16
Requirements of tractor design. C. M. Eason. Automobile 34:240 F 3 '16
Robinson truck and tractor; heavy duty, 80 to 120 h.p. machines. diags Munic J 40:528 Ap 13 '16
Swing tractor truck developed for hauling steel. il Eng Rec 73:223 F 12 '16
Ten years of the motor tractor. Munic Eng 50:247 Je '16
Towing winch tractor for contractors' service. il Eng & Contr 45:297 Mr 29 '16; Horseless Age 37:277 Ap 1 '16
Track-laying truck-tractor. il Sci Am 114:534 My 20 '16
Traction engine cost. Munic J 40:108 Ja 27 '16
Tractor demonstrations at Dallas, Texas. S. P. McMinn. Automobile 35:160 Jl 27 '16
Tractor drives knotty problem. A. L. Clayden. il Automobile 35:474-7 S 21 '16
Tractor transmission serious problem. A. L. Clayden. il diag Automobile 35:527-9 S 28 '16
Tractor with drive wheel in the furrow. Sci Am 114:512 My 13 '16
Tractors handle pig iron. F. L. Prentiss. il Iron Age 98:569-70 S 7 '16
Tractors make hit in Kansas. Automobile 35:207-8 Ag 3 '16
Tractors till 1 acre to 2½ gal. gasoline in Illinois corn belt. Automobile 34:870-1 My 11 '16
Transport five ton tractor. il Horseless Age 36:436 N 1 '15; Munic J 40:90 Ja 20 '16
Truck and tractor engines. H. L. Horning. Automobile 35:388-90+, 446-8, 480-2 S 7-21 '16
Truck tractor for highway construction. il Sci Am 115:374 O 21 '16
Yuba champion ball tread tractor. il Good Roads n s 11:24 Ja 1 '16; Eng N 75:1119 Je 15 '16
See also Agricultural machinery; Electric tractors; Tractor industry

Rating

- Rate tractors by drawbar. R. Olney. Automobile 35:13-14 Jl 6 '16
Torque and ratio determine drawbar pull. Automobile 35:349 Ag 31 '16

Specifications

- Specifications of light tractors for agricultural and other uses. Horseless Age 37:317 Ap 15 '16

Testing

- Dynamometer for determining horsepower of tractors; abstract. il Am Soc M E J 38:429-30 My '16
Efficiency of farm tractors; a standard system of testing needed. C. M. Eason. il diags Sci Am 115:96-7 Jl 29 '16

Tractors, Electric. See Electric tractors**Tractors, Military**

- Armored tractors in the European war. il diag Sci Am 115:322-3 O 7 '16
Automatic land cruiser; part played by American company in developing the tanks of French battlefields. W. E. Freeland. diags Iron Age 98:694-5 S 28 '16
Caterpillar tractor becomes a tank. Eng & Contr 46:289-90 O 4 '16
Four-wheel drive for heavy tractors. W. F. Bradley. il Automobile 35:311-16 Ag 24 '16
Land cruisers in the battle of the Somme. il Sci Am 115:391 O 28 '16

- Tractors, Military—Continued**
 Tanks—a British account. *Automobile* 35:621 O 12 '16
 Walking, hopping, creeping and crawling mechanical beasts. *il Sci Am* 115:305 S 30 '16
- Tractors, Municipal**
 Gasoline-electric tractors in New York street cleaning service. *il Munic Eng* 50:28-30 Ja '16
 Knox tractors in municipal haulage. *il Munic Eng* 50:38-9 Ja '16
 Motor tractors as New York street cleaners. C. L. Edholm. *il Horseless Age* 38:300-1 N 1 '16
 New York's gasoline-electric trucks for garbage-collection and snow-removal service. *il Sci Am* 114:327+ Mr 25 '16
 Tractor and trailer test at Cincinnati, Ohio. *il Good Roads* n s 10:313-14 D 4 '15; *Eng Rec* 72:726 D 11 '15
 Tractors and trailers in municipal work. *il Munic J* 39:876-9 D 9 '15
- Trade. See Business**
- Trade agreements**
See also Arbitration, Industrial
- Trade associations**
 Cost keeping the basis of prosperity. H. F. Porter. *Eng M* 51:330-2 Je '16
 Lectures for sheet metal contractors. *Metal Work* 85:406, 465-6 Mr 24-Apr 7 '16
 Objects of modern co-operation. T. M. Debevoise. *Elec W* 68:269 Ag 5 '16
 Present attitude of the government towards trade associations. E. N. Hurley. *Heat & Ven* 13:16-7 S '16
 Trade associations and better business methods. E. N. Hurley. *Engineer* 121:473-4 Je 9 '16; Same cond. *Metal Work* 85:478-80 Ap 7 '16
 Trade associations as factors in business success. *Metal Work* 85:382-3 Mr 17 '16
- Trade catalogs. See Catalogs**
- Trade commission, Federal. See United States—Federal trade commission**
- Trade conference, International. See International trade conference**
- Trade marks**
 Argentine trademark law. R. W. Huntington. *Automobile* 35:629, 638, 646, 680 O 12-19 '16
 Biscuits as an instance. *Inland Ptr* 56:482-3 Ja '16
 Protecting the integrity of the brand. G. D. Crain, jr. *Textile World* 51:1773+ Ap 8 '16
 Registration of trade-marks in Latin America. U S Bur For & Dom Com Tariff ser 31:1-8 '16
 Trade-mark decision; petition of R. H. Macy & co. vs. Notaseme hosiery co. refused. *Textile World* 51:1331+ Mr 4 '16
 Trademark legislation. *Sci Am* 114:344 Ap 1 '16
 Trade-marks in the American republic; a plea for the ratification of the Buenos Aires convention. *Sci Am S* 81:110-11 F 12 '16
See also Patents
- Trade papers**
 Association organ or trade paper. W. A. Bradford. *Metal Work* 86:52-4 Jl 14 '16
 Future of the technical and trade press. J. H. McGraw. *Eng Rec* 71:554-5 N 4 '16
 Government co-operation with the trade press. *Inland Ptr* 57:381 Je '16
 Sixtieth anniversary of the Iron age. *Iron Age* 97:103-9 Ja 6 '16
 Theory vs. service. J. N. Remsen. *Iron Tr R* 58:940 Ap 27 '16
 Trade journals aid in securing business. W. B. Metzger. *Metal Work* 84:795 D 24 '15
 Value of reading trade papers. *Metal Work* 84:848 D 31 '15
 Why and how of trade and technical papers. *Ry R* 59:705-6 N 18 '16
See also House organs
- Trade schools**
 Making of a skilled mechanic; Wentworth institute. Boston, Mass. *il diags Iron Age* 97:69-74 Ja 6 '16
 Planning of trade and industrial school buildings. L. Gustafson. *plan Brickb* 25:135-8, 161-6 Je-Jl '16
- Sheet metal and plumbing classes show their work at electrical show in New York city. *il Metal Work* 86:551-2 N 3 '16
 Small art trade school. *il Am Inst Arch J* 4:348-9 Ag '16
 Wentworth institute power plant course. C. L. Hubbard. *il Power* 44:152-5 Ag 1 '16
See also Corporation schools; Textile schools; also names of schools, e.g. Carnegie institute of technology, Dunwoody industrial institute
- Trade unions**
 Australian trade unions under existing state law. E. E. Keep. *Am Ind* 16:42-3 My '16
 Photoengravers and the union. *Inland Ptr* 58:195-7 N '16
See also Arbitration, Industrial; Strikes
- Trade waste**
 Activated sludge process for the purification of wastes from a sheepskin tannery; abstract. H. P. Eddy. *Munic J* 41:513 O 26 '16
 Activated-sludge process in treatment of tannery wastes. H. P. Eddy and A. L. Fales. *J Ind & Eng Chem* 8:648-51 Jl '16
 Cleaning up and improvement of a stream polluted by sewage and trade wastes. H. P. Eddy. *Eng & Contr* 46:140-4 Ag 9 '16
 Design of disposal plant for creamery or cheese factory wastes. A. E. Kimberly. *plan Eng & Contr* 46:238-9 S 13 '16
 Disposal of creamery waste. *Metal Work* 84:745 D 10 '15
 Disposal of gas house wastes. P. Hansen. *plan Am Gas Light J* 104:228-9 Ap 10 '16
 Experimental studies of strawboard waste purification. H. B. Hommon. *Eng & Contr* 45:476-9 My 24 '16
 Purification of the wastes from the finishing of woolen goods. H. R. Crohurst and A. D. Weston. *Eng & Contr* 45:560-7 Je 21 '16
 Slaughter-house sewage test plant. Buenos Aires. W. S. Coulter. *Eng N* 76:837-8 N 2 '16
 Treatment of colliery and other trade wastes in the Emscher district. Dr. Bach. *Eng & Contr* 45:372-3 Ap 19 '16
 Treatment of packing-house sewage by aeration in the presence of activated sludge. P. Rudnick and G. L. Noble. *J Ind & Eng Chem* 8:651-2 Jl '16
See also Waste products
- Trades. See Occupations, Choice of**
- Traffic. See Railroads—Traffic; River traffic; Road traffic; Street railroads—Traffic; Street traffic**
- Traffic regulation. See Street traffic**
- Traffic signs**
 Electric street traffic signal. *il Elec W* 67:1257-8 My 27 '16
 Electrically lighted traffic signs at Mount Vernon, Ohio. *il Elec W* 67:47 Ja 1 '16
 Semaphores for controlling street traffic. *il Munic J* 39:994-5 D 30 '15
 Standard warning signs on Portland, Ore., streets. *il Eng & Contr* 45:187 F 23 '16
 Street traffic signal in San Francisco. *il Elec Ry J* 47:776 Ap 22 '16
 Traffic fire signal. *il Munic J* 40:234 F 17 '16
 Traffic signals. *il Munic J* 39:884 D 9 '15
 Trenton's traffic signal. *il Munic J* 39:952 D 23 '15
- Traffic surveys. See Street railroads—Traffic; Street traffic**
- Trailers. See Automobile trailers; Motor truck trailers; Street cars—Trailers**
- Train dispatchers**
 Real life in the despatcher's office. J. L. Coss. *Ry Age* 61:541 S 29 '16
 Train dispatchers as officers. J. L. Coss. *Ry Age* 61:687-8 O 20 '16
 Train dispatchers as officers. W. H. Smith; M. H. Clapp. *Ry Age* 61:410 S 8 '16
 Train despatcher's life, past and present. *Ry Age* 59:1183-4 D 24 '15
- Train dispatchers' association of America**
 29th annual convention, Toronto, Ont., June 20-21. *Ry Age* 61:21-2 Jl 7 '16
- Train dispatching**
 Lately revised standard code. J. L. Coss. *Ry Age* 61:96 Jl 21 '16

Train dispatching—Continued

New signaling device for telephone dispatching circuits. diag Ry R 59:160 J1 29 '16
Train dispatcher and safety first. J. L. Coss. Ry Age 61:996 D 1 '16

Train ferries. See Car ferries**Train lighting.** See Car lighting**Train load.** See Railroads—Train load**Train resistance**

Facts concerning grade resistance and car friction. H. G. Boutell. Ry Mech Eng 90: 345 J1 '16
Initial resistance to car motion. D. D. Ewing. Elec Ry J 48:974-5 N 4 '16

Train sheds. See Railroads—Train sheds**Trainmen.** See Railroads—Employees**Trains.** See Railroads—Trains**Trains, Hospital.** See Hospital trains**Tramways.** See Street railroads**Transatlantic flight.** See Aviation**Transference, Electric.** See Dissociation**Transformers, Electric.** See Electric transformers**Transit, Surveyors'**

Combination of plane table and transit for topography. H. T. Johnson. diag Eng N 76:488-90 S 14 '16
Convertible level and transit. il Eng N 75:495 Mr 16 '16
Locating snow shed fires by transit. N. Searls. Eng & Contr 46:194-5 Ag 30 '16
Supports for transits. J. F. Spedding. diags Eng & Min J 102:302 Ag 12 '16

Transmission lines. See Electric lines**Transmission of power.** See Electric transmission**Transportation**

Relation of water power to transportation. L. E. Stillwell. Am Inst E E Pro 35:561-74 My '16
Third arm of preparedness—transportation. J. Younger. Am Soc M E J 38:442 Je '16
Traffic routes from the Lakes to the seaboard. map Eng N 76:604-5 S 28 '16
Transportation and foreign trade. E. R. Johnson. Ry R 57:830-2 D 25 '15

See also Aeronautics; Automobiles; Barges; Coal handling; Commerce; Demurrage; Electric railroads; Electric vehicles; Ferryboats; Freight car service; Freight handling; Harbors; Haulage; jitney buses; Mechanical handling; Mine haulage; Motor trucks; Packing for shipment; Pneumatic tubes; Ports; Railroads; River traffic; Roads; Shipping; Steamboat lines; Steamboats; Street railroads; Telpirage; Terminals; Trucks; Waterways

Transportation, Military

Civilian motor trucks as army supply trains. J. Brinker. il Sci Am 114:423+ Ap 22 '16
Government transportation plans: work of the Society of automobile engineers in standardizing parts. C. F. Clarkson. Sci Am 114:582 Je 3 '16

Miracle of motor transport; how Verdun, cut off from the railroads, was saved. J. Brinker. il Sci Am 115:38-9 J1 8 '16

Mountain gun and mule team. il Sci Am S 81:372 Je 10 '16

Moving a regiment by motor. il Sci Am 114: 644 Je 17 '16

See also Automobiles in war; Motor trucks, Military; Railroads in war; Roads, Military; Tractors, Military

Transportation and car accounting officers, Association of. See Association of transportation and car accounting officers**Transvaal**

See also Gold mines and mining—Transvaal

Traveler's tree

Traveler's tree—a popular misconception. il Sci Am 115:492 O 28 '16

Traveling engineers' association

24th annual convention, Chicago, Oct. 24. Ry R 59:588-92, 626-30 O 28-N 4 '16; Ry Age 61:795-801 N 3 '16; Ry Mech Eng 90:561-5 N '16

Traverse tables

Adaptation of modern traverse tables to mine surveys. L. D. Tracy. Coal Age 9:528-30 Mr 25 '16

Trawls and trawling

How the shrimp industry saved Fernandina. C. M. Maigne. il Sci Am 115:35 J1 8 '16

Tree felling

Tree-felling saw in operation. il diags Engineer 122:104 Ag 4 '16

Tree planting

Blasting and tree planting. F. W. Wilson. il Am For 22:276 My '16
Cost of planting small trees at Kensico reservoir. Eng & Contr 45:415 My 3 '16
Growing shagbark hickory for profit. il Sci Am 115:244 S 9 '16
Method of transplanting half grown trees. il Eng & Contr 46:430-1 N 15 '16
Moving a forty-foot tree forty-nine miles by motor truck. il Sci Am 115:156 Ag 12 '16
Planting trees by machine. il Sci Am 115:460 N 18 '16
Selecting trees for planting. J. J. Levison. il Am For 22:543-4 S '16
Tree planting by machine. Eng & Contr 45: 590 Je 28 '16
Tree planting would give New York a park system. map Eng Rec 74:147-8 J1 29 '16

Tree planting, Municipal

Municipal planting of shade trees. J. J. Levison. il Am For 22:419-20 J1 '16

Tree surgery. See Trees, Care of**Trees**

Daniel Boone's "bar" tree. W. R. Mattoon. il Am For 21:1105-6 D '15
Determining the age of blazes. il Sci Am S 82: 260 O 21 '16
Economic value of shade trees. W. W. Colton. il Am For 22:107-9 F '16
How to measure height of trees. il Am For 22:618 O '16
How to tell the age of trees. il Am For 22: 554 S '16
How trees heal their wounds. il Sci Am S 81: 53 Ja 22 '16
Natural tree surgery; how unprofitable parts are eliminated in the vegetable kingdom. D. Brock. il Sci Am 115:170 Ag 19 '16
Tree census. A. O. Smith. Am For 22:622-5 O '16
Tree that owns itself. T. H. McHatton. il Am For 22:661 N '16
Trees in medicine. J. Foote. il Am For 22:648- 53 N '16
Trees of Porto Rico. W. D. Brush. L. S. Murphy and C. D. Mell. U S Agric Bul 354: 56-97 '16

See also Bark as food; Cigar-box wood; Forests and forestry; Lumber; Nuts; Sap; Timber; Tree felling; Tree planting; Wood; Woodlots; also names of trees, i.e. Ash, Birch, Cedar, Cypress, Elm, Fir, Greenheart, Hickory, Oak, Pine, Red gum; Redwood, Sequoias, Spruce, Sycamore, Traveler's tree, Willow

Diseases and pests

Damage by spurs. J. L. Richards. il Am For 22:228-31 Ap '16
Do ants kill trees about their colonies? R. C. Hawley and S. J. Record. il Am For 22:685-6 N '16
Fungus diseases of trees. R. B. Maxwell. il Am For 22:161-3 Mr '16
Safety first in tree planting. P. Spaulding and C. Hartley. il map Am For 22:664-8 N '16
See also Mistletoe; Porcupines

Trees, Care of

Protection to avoid killing of trees. il Ry R 58:161 Ja 29 '16
Reinforcing trees. H. J. Neale. il Am For 22: 42-3 Ja '16
Taking care of shade trees. J. J. Levison. il Am For 22:485-6 Ag '16
Tree faker. H. W. Merkel. il Am For 22:294-6 My '16
What we can do for our trees in winter. J. J. Levison. Am For 22:680 N '16

Trees, Effect of gas on

Accurate diagnosis of trees killed by gas. G. E. Stone. il Am Gas Light J 105:241-3 O 16 '16

Trees, Effect of smoke on

Effect of smoke on trees. *Sci Am S* 81:3 Ja 1 '16

Trees, Fossil

Wood older than the hills. A. Koehler. *il Am For* 22:92-3 F '16; Same. *Sci Am S* 81:156 Mr 4 '16

Tremies. See Concrete placing**Trench-foot. See European war—Medical and sanitary affairs****Trench newspapers. See War newspapers****Trenches**

All work for double-deck sewer performed from five mounted platforms. *il diag Eng Rec* 74:227 Ag 19 '16

Backfilling trenches. *Munic J* 41:190-1 Ag 17 '16

Backfilling trenches with a road grader. W. E. Voorhees. *il Eng & Contr* 46:406-7 N 8 '16

Building 22 mi. of pipe sewers under one contract. *il diags Eng N* 75:592-5 Mr 30 '16

Corduroy trench backfiller. *il Munic Eng* 51:164 O '16

Cost of trenching for water mains. A. G. Drury. *Munic J* 41:381 S 28 '16

Digging a 7-foot 6-inch sewer trench in Chicago. *il Munic Eng* 49:238-9 D '15

Gantry cranes work on sewer at Salt Lake City. *il Eng N* 76:97 Jl 20 '16

Handling pipes and conduits in sewer trenching. *Eng N* 75:562 Mr 23 '16

Mechanical tamping of trench backfill. C. W. Wilson. *il Munic Eng* 50:191-3 My '16

New rules governing the handling of water pipes and other underground utility structures encountered in excavating sewer trenches in Chicago. *Eng & Contr* 45:288 Mr 22 '16

One-man backfilling machine. *il Eng N* 75:754-5 Ap 20 '16

P & H corduroy back-filler. J. D. Rankin. *diags Munic Eng* 50:211-12 My '16

Parsons back fillers. *il Munic J* 41:140-1 Ag 3 '16

Pneumatic rammers for trench tamping. *il Sci Am* 115:85 Jl 22 '16

Records of experience with trench backfilling machines. *il Eng & Contr* 46:159-60 Ag 16 '16

Trenching machinery used for the construction of trenches for tile drains. D. L. Yarnell. *il Farmers' Bul* 698:1-26 '15

Two new methods in backfilling. *il diag Eng N* 74:1133-4 D 9 '15

Winter sewer work at St. Paul. G. H. Herrold. *il Eng N* 75:1090-1 Je 8 '16

See also Excavation

Trenches, Military. See Intrenchments**Trepanning**

Trepanning heavy cylindrical forgings. *diags Mach* 23:47-8 S '16

Trestles

Ballasted-deck pile trestles: Kansas City Southern Ry. *diags Eng N* 75:11 Ja 6 '16

Carts for distributing ties on a long trestle. W. D. James. *il Eng & Contr* 45:587 Je 28 '16

Running trestles seen on the Southern Ry. *il diags Eng N* 76:948 N 16 '16

Filling trestles on an electric railway. *diags Eng N* 75:1139-41 Je 15 '16

Stockpile trestle of recent design. G. S. Barber. *Iron Tr R* 58:232+ Ja 27 '16

See also Bridges

Trestles, Concrete

Concrete highway trestle across Yolo bypass. *il diags map Eng N* 75:358-62 F 24 '16

Concrete railway trestles. *diags Eng N* 75:203 F 3 '16

Pipe trestles of wood replaced by concrete. J. S. Ely. *il Eng Rec* 74:329-30 S 9 '16

Yolo basin concrete trestle. *il Good Roads n s* 12:161 O 7 '16

Trèves, Germany

Old Roman city. D. A. Willey. *il Arch Rec* 40:397-9 O '16

Triacetyl methylxyloside

Bromoacetylxylose and beta-triacetyl methylxyloside. J. K. Dale. *Am Chem Soc J* 37:2745-7 D '15

Triangulation. See Surveying**Triarylcarbinols**

Triphenylmethyl; tautomerism of triarylcarbinols. M. Gomberg and N. E. Van Stone. *Am Chem Soc J* 38:1577-1606 Ag '16

Triaryl methylchloroamines

Molecular rearrangement of some triaryl methylchloroamines. A. F. Morgan. *Am Chem Soc J* 38:2095-2101 O '16

Trieste

Trieste; claims of Austria and Italy. A. Lindstead. *Sci Am* 114:301 Mr 18 '16

Triethylamine

Properties of mixed liquids; phenol-water and triethylamine-water mixtures. J. L. R. Morgan and G. Egloff. *Am Chem Soc J* 38:844-57 Ap '16

Trigonometry

See also Logarithms

Trimethylene

Reactions of some carboxyl derivatives of trimethylene. D. A. Hahn. *Am Chem Soc J* 38:1517-34 Ag '16

Trimethylene oxide

Studies of trimethylene oxide; preparation and characterization. C. G. Derick and D. W. Bissell. *Am Chem Soc J* 38:2478-86 N '16

Trinitrotoluene

Nitration of toluene. E. J. Hoffman. *bibliog U S Bur Mines Tech Pa* 146:1-31 '16

Nitration of toluene. E. J. Hoffman. *Met & Chem Eng* 14:467-8 My 1 '16

Nitration of toluene to trinitrotoluene. I. W. Humphrey. *J Ind & Eng Chem* 8:998-9 N '16

Sensitiveness to detonation of trinitrotoluene and tetranitromethylanilin. G. B. Taylor and W. C. Cope. *U S Bur Mines Tech Pa* 145:1-8 '16

Utilization of aromatic hydrocarbons derived from cracked petroleum. W. F. Rittman. *J Ind & Eng Chem* 7:1014-19 D '15

Triphenylmethyl

Triphenylmethyl; tautomerism of triarylcarbinols. M. Gomberg and N. E. Van Stone. *Am Chem Soc J* 38:1577-1606 Ag '16

Triphenyl methylhalogenamines

Molecular rearrangement of triphenyl methylhalogenamines. I. Vosburgh. *Am Chem Soc J* 38:2081-95 O '16

Trisection of angles

Mechanical trisector. E. Berkel. *il Sci Am* 113:519 D 11 '15

To trisect an angle. *Eng Rec* 73:57, 122, 331-2 Ja S 22, Mr 4 '16

Trisecting an angle with a ruler. W. S. Chapin. *Sci Am* 114:151 F 5 '16

Trolley, Trackless. See Trackless trolley**Trolley lines. See Electric railroads****Trolley poles**

Bates trolley pole tested to failure. *il diag Elec Ry J* 47:967 My 20 '16

Mine locomotive trolley that prevents trouble when running backward. R. H. Richards. *il Elec W* 67:547 Mr 4 '16

Reinforcing tubular poles internally. S. L. Foster. *diags Elec Ry J* 48:109-10 Jl 15 '16

Trolley poles inside of lighting standards at Salt Lake City. *il Elec W* 67:1433 Je 17 '16

Trolley wheels. See Electric railroads—Equipment and supplies**Trolley wire**

Portable trolley-wire reel holder. S. L. Foster. *il Elec Ry J* 47:220-1 Ja 29 '16

Production and properties of electrolytic copper. B. Welbourn. *il diag Inst E E J* 54:54-62 D 1 '15; Excerpts. *Engineer* 120:484-5 N 19 '15

Reusing worn trolley wire. G. H. McKelway. *il Elec Ry J* 48:1026 N 11 '16

Trolley wire experiences of the Union railway, New York. J. D. Kent. *il Elec Ry J* 48:540-1 S 23 '16

Why trolley wire wears out. C. J. Earll. *diag Elec Ry J* 47:734-5 Ap 15 '16

Why trolley wire wears out. S. L. Foster. *il Elec Ry J* 47:569-71, 613, 909-10 Mr 18-25, My 13 '16

See also Electric railroads—Wiring

Trolleys

See also Electric railroads—Equipment and supplies

Tropical hygiene

Engineer in the tropics. G. R. Archdeacon. Eng & Min J 101:938 My 27 '16
Tropical ration list. R. C. Hardman. Eng & Contr 45:119 My 3 '16; Same. Eng & Min J 101:940 My 27 '16

Troy, Pennsylvania**Sewerage**

Privately financed sewer system for small town produces \$2,000 yearly revenue. H: W. Taylor. Eng Rec 73:45-6 Ja 8 '16

Trucks

Easy running package freight truck. il Ry Age 61:694 O 20 '16
Handling materials in manufacturing plants. R. L. Streeter. il Eng M 51:81-100 Ap '16
Steubing lifting trucks. il Metal Work 84:847 D 31 '15
Truck for handling concrete units. il Concrete 9:169 N '16
Truck with special lowering device. il Iron Age 96:1521 D 30 '15

See also Car trucks; Electric trucks; Motor trucks

Trucks, Electric. See Electric trucks**Trucks, Motor.** See Motor trucks**Trusses**

Columns in first floor of Boston theater avoided by use of 106-foot truss. il diags Eng Rec 74:287-90 S 2 '16
Concrete cantilever trusses support large pipe line. il Eng Rec 72:696 D 4 '15
Deflection of trusses. E. H. Casper and C. J. Kennedy. diags W Soc E J 21:115-35 F '16
Design of beams, girders and trusses. E. McCullough. Bldg Age 38:63-4 Ap; 47-8 My; 63-4 Je; 53-4 JI '16
Details of roof-arch collapse in Atlanta. il diag Eng N 76:70-2 JI 13 '16
Eighteenth century roof truss. diag Bldg Age 38:39-40 S '16
Howe truss highway bridge with composite chord. diags Eng N 76:559-60 S 21 '16
Influence lines as deflection diagrams. D. B. Steinman. diags Eng Rec 74:648-50 N 25 '16
Large steel-frame ship shed contains special trusses designed for vertical and horizontal crane loading. il diags plan Eng Rec 74:550-2 N 4 '16
Light wooden roof truss for canvas inclosure. C. B. Chace. diags Eng N 75:612-13 Mr 30 '16
Log truss highway bridges. Utah road standards. diags Eng N 75:1238 Je 29 '16
Long-span Howe trusses fail. il diag Eng N 75:1184-5 Je 22 '16
New columns and trusses to support added stories in Engineering societies building. diags Eng Rec 74:412-14 S 30 '16
New formulas for weights of girders and trusses. A. G. Hayden. Eng N 75:422-3 Mr 2 '16
New method of determining stresses in web members of a Fink truss. H. B. Wrigley. diags Bldg Age 38:53 My '16
Novel steel truss section. il Iron Tr R 58:655-6 Mr 23 '16
Reinforced concrete roof trusses. A. M. Wolf. il diags Concrete 8:251-7; 9:13-18 Je-JI '16
Rusted pony truss collapses at Johnstown, Penn. il diags Eng N 75:622-4 Mr 30 '16
Springfield coliseum roof supported by 200-foot arches without tie rods. il diags Eng Rec 74:442-4 O 7 '16
Three-hinged arches and curved cantilever roof trusses used in recreation building, Chicago municipal pier. il diags Eng Rec 74:140-1 JI 29 '16
Use of influence lines; with discussion. R. W. Flowers and H. N. Jones, jr. diags W Soc E J 21:136-58 F '16

See also Bridges; Building; Girders; Roofs; Strains and stresses

Trusts. Industrial

Trust laws and unfair competition. Mach 23: 184+ O '16

See also Public utilities—Regulation

Trypsin

Assumed destruction of trypsin by pepsin and acid. J. H. Long and M. Hull. Am Chem Soc J 38:1620-38 Ag '16

Tube mills

Another tube-mill lining. A. Del Mar. il Eng & Min J 101:224-5 Ja 29 '16
Crushing and grinding machinery. Eng & Min J 102:60-4 JI 1 '16
Dumb-bell tube mill. G. A. Robertson. Met & Chem Eng 14:224 F 15 '16
Installation of tube mills. C: Labbe. diag Eng & Min J 101:777-8 Ad 29 '16
Mine rock in tube mills. C: Labbe. Eng & Min J 102:906-7 N 18 '16
New type of tube-mill lining. A. J. Weinig. Eng & Min J 102:27 JI 1 '16
Plymouth lining for tube mills. il Eng & Min J 101:263 F 5 '16
Spiral tube-mill feeders. A. C. Daman. Eng & Min J 102:867 N 11 '16

See also Crushing machinery

Tuberculosis

What is being done to conquer tuberculosis. W: H. Seed. Inland Ptr 58:233-4 N '16

Tubes

Experience in drawing thin white-metal tubes. H. J. Randall. diags Metal Ind n s 14:386-7 S '16
Industry needs a flexible tubing in which it will be safe to allow the gas pressure to remain at all times. diags Am Gas Light J 105:300-1 N 6 '16
Renewing economizer tubes. C: H. Bromley. il diags Power 43:174-6 F 8 '16
Renewing economizer tubes. W: Butler. il Power 43:369 Mr 14 '16

See also Pipes

Tubes, Boiler. See Boiler tubes**Tubes, Canvas**

Supplying fresh air through canvas tubes to underground workers. il Sci Am 114:661 Je 24 '16

Tubes, Pneumatic. See Pneumatic tubes**Tubes, Steel**

Autogenous welding of steel tubing. il Iron Age 97:135-8 Ja 13 '16
Shelby tubing for textile machinery. il diag Mach 22:978 JI '16
Welding tubing by oxy-acetylene. il plan Iron Tr R 59:117-19 JI 20 '16

Tugboats. See Towboats**Tumbling barrels**

Automatic device for cleaning castings. diags Foundry 44:70 F '16; Same. Iron Tr R 58: 1320 Je 15 '16
Modern methods of cleaning castings. H. C. Estep. il Iron Age 98:881-3+ O 19 '16

Tungsten

Analysis of certain tungsten derivatives. O. R. Sweeney. diag Am Chem Soc J 38:2377-83 N '16
Boulder county tungsten district, Colo. H. J. Wolf and P. P. Barbour. flow sheet il Eng & Min J 102:165-9 JI 22 '16
Characteristics of tungsten filaments as functions of temperature. I. Langmuir. Gen Elec R 19:208-12 Mr '16
Color temperature scales for tungsten and carbon. E. P. Hyde, F. E. Cady, and W. E. Forsythe. J Fr Inst 181:418-20 Mr '16
Development of practical substitutes for platinum and its alloys, with special reference to alloys of tungsten and molybdenum. F. A. Fahrenwald. il diags Am Inst Min E Bul 109:103-49 Ja '16; Summary. Met & Chem Eng 14:339 Mr 15 '16
Economic extraction of tin and tungsten from Cornish ores. Engineer 121:280-1 Mr 31 '16
Effect of chromium and tungsten upon the hardening and tempering of high speed tool steel; abstract, with discussion. C. A. Edwards and H. Kikkawa. Iron Age 96:1126-7 N 11 '15; Same. Metal Work 84:819-20 D 24 '15
Emissive power of tungsten for short wavelengths. E. O. Hulbert. J Fr Inst 182:695-6 N '16
Many millions spent for tungsten. Iron Tr R 59:287 Ag 10 '16

Tungsten—Continued

- Milling of tungsten ores. J. F. Magee. *il Eng & Min J 101:11-18 Ap 22 '16*
- Mining tungsten ores in Colorado. R. C. McKenna. *il Iron Tr R 57:1280-2 D 30 '15*
- New derivatives of tungsten. J. B. Hill. *Am Chem Soc J 38:2383-91 N '16*
- 1916 tungsten production. *Eng & Min J 102:313 Ag 12 '16*
- Preparation of tungsten metal. H. Fleck. *Eng & Min J 102:907 N 18 '16*
- Production and exports of Japanese tungsten. *Sci Am 115:321 O 7 '16*
- Recent practice in concentrating Colorado tungsten ores. H. C. Parmelee. *il flow sheet Met & Chem Eng 14:301-4 Mr 15 '16*
- Separating wolframite from tin. A. Grossberg. *Eng & Min J 102:139-40 Jl 15 '16*
- System tungsten-molybdenum. F. A. Fahrenwald. *il Am Inst Min E Bul 114:1049-55 Je '16*
- Test-pit sampling of placers. H. E. Hooper. *Eng & Min J 102:222 Jl 29 '16*
- Thermal expansion of tungsten at incandescent temperatures. A. G. Worthing. *J Fr Inst 181:857 Je '16*
- True temperature scale for tungsten and its emissive powers at incandescent temperatures. A. G. Worthing. *J Fr Inst 181:417-18 Mr '16*
- Tungsten and molybdenum. *Eng & Min J 100:1061-2 D 25 '15*
- Tungsten and tungsten steel. *Eng & Min J 101:1027-8 Je 10 '16*
- Tungsten arc under pressure. G. P. Luckey. *J Fr Inst 182:407-9 S '16*
- Tungsten in Arizona. W. P. De Wolf. *Eng & Min J 101:680 Ap 15 '16*
- Tungsten in Inyo county, Calif. *Eng & Min J 102:271-2 Ag 5 '16*
- Tungsten in South Africa. *Eng & Min J 101:254 F 5 '16*
- Tungsten in the assay for lead. H. Lavers. *Eng & Min J 102:513 S 16 '16*
- Tungsten—its importance in the manufacture of alloy steel. R. C. McKenna. *il Mach 22:412 Ja '16*
- Tungsten market in 1915. *Eng & Min J 101:144-5 Ja 15 '16*
- Tungsten-molybdenum equilibrium diagram and system of crystallization. Z. Jeffries. *il diag Am Inst Min E Bul 115:1225-36 Jl '16; Discussion. 120:2231 D '16*
- Tungsten-molybdenum ore concentration. A. J. Robertson. *Eng & Min J 102:126-7 Jl 15 '16*
- Uses of tungsten. *Sci Am S 81:176 Mr 11 '16*
- X-ray spectrum of tungsten. A. W. Hull. *il diags Gen Elec R 19:603-10 Jl '16; Same. Sci Am S 82:308-10 N 11 '16*
- Tungsten lamps.** See Electric lamps, Tungsten
- Tungsten steel**
- Manufacture and uses of alloy steels. H. D. Hibbard. *U S Bur Mines Bul 100:16-19 '15; Same. Ry R 58:304-5 F 26 '16*
- Tunnel lining**
- Casting iron segments for New York tunnels. E. C. Kreutzberg. *il Foundry 44:127-32 Ap '16; Same. Iron Tr R 58:861-6 Ap 20 '16*
- Jacketing a railway tunnel by mining methods. *diags Eng N 76:254-6 Ag 10 '16*
- Lining a shield-driven tunnel with wood and concrete. *diag Eng N 75:136-7 Ja 20 '16*
- Lining the Wilson avenue water supply tunnel at Chicago by pneumatic mixing and placing. *il Eng & Contr 45:502-3 My 31 '16*
- Machining and molding cast tunnel linings. L. J. Josten. *il Iron Age 96:1279-82 D 2 '15*
- Materials chuted through drill holes to mixer in tunnel. W. W. Hornér. *il diags Eng N 76:705-6 O 12 '16*
- Method of relining a tunnel with steam jetted concrete. H. P. Brown. *il Eng & Contr 45:181-2 F 23 '16*
- Placing concrete lining in tunnels by compressed air. *il diag Engineer 122:354-5 O 20 '16*
- Pneumatic mixer lines railway tunnel under traffic. *il diag Eng N 76:936-8 N 16 '16*
- Pneumatic mixer moved as lining progressed in long tunnel. *il Eng Rec 73:334 Mr 4 '16*
- Repairing a tunnel lining under difficult conditions at Winston, Ill. *il Ry Age 59:1158-9 D 17 '15*
- Sewer tunnel lined with vitrified blocks. A. C. Remley. *il Munic J 40:507-9 Ap 13 '16*

- Steel plates for tunnel lining. *il Concrete Cem 8:41 Ja '16*
- Tunnel-concreting methods. L. G. Warren. *il Eng N 76:794-5 O 26 '16*
- Tunnel grouting in Brooklyn end of Catskill aqueduct. O. W. Myers. *il diags Eng N 76:196-200 Ag 3 '16*
- Tunnel grouting with pumps. L. G. Warren. *diags Eng N 76:702-3 O 12 '16*
- Tunnel lining by compressed air mixing and placing. *il diags Eng & Contr 45:29-34 Ja 12 '16*
- Utilizing tunnel spoil for concrete lining without removal from tunnel. *diags Eng & Contr 46:157 Ag 16 '16*
- Tunnel shields**
- Shield moves itself to place to start new tunnel. *il Eng Rec 73:462 Ap 1 '16*
- Tunnel ventilation**
- Origin of compressed-air tunnel ventilation. F. M. Pierce. *Eng N 74:1139-40 D 9 '15*
- See also Subways—Ventilation
- Tunnels and tunneling**
- Bypass around leaky tunnel in Catskill aqueduct. C. A. Hirschberg. *il diags Eng N 74:1108-9 D 9 '15; Same. Eng & Min J 101:260-1 F 5 '16*
- Canvas air duct in tunneling. *il Eng M 51:sup4 Ap '16*
- Cast iron in tunnel construction. *Iron Tr R 59:638 S 28 '16*
- City tunnel of the Catskill aqueduct. W. E. Spear. *il diags map Am Water Works Assn J 3:514-28 Je '16; Excerpts. Eng & Contr 46:31-2 Jl 12 '16*
- Close tunnel cross-sectioning widens clearance. *il Eng N 76:899-900 N 9 '16*
- Columbia highway tunnel. H. L. Bowlby. *il plan Eng N 75:446-8 Mr 9 '16*
- Construction of the Rogers Pass tunnel, Canadian Pacific Ry. J. G. Sullivan. *diags plans map Ry R 58:697-700 My 20 '16; Same cond. Ry Age 60:1044-5 My 12 '16; Same cond. Eng & Contr 46:152-4 Ag 16 '16*
- Construction of Wilson avenue intake tunnel, Chicago. F. H. Bernhard. *il diag Munic J 40:747-50, 787-90 Je 1-8 '16*
- Cost of a crosscut adit. W. J. Elmendorf. *Eng & Min J 101:987 Je 3 '16; Same (Cost of driving a 7½x8-ft. heading in hard rock). Eng & Contr 45:557-8 Je 26 '16*
- Cutting clay tunnel face with special knife. *diags Eng N 76:360 Ag 24 '16*
- Diverting an aqueduct during tunnel construction. *Eng N 75:129 Ja 20 '16*
- Drilling methods in driving 6-ft. tunnel. S. W. Symons. *il diag Eng N 75:374-5 F 24 '16; Same cond. Eng & Min J 101:523 Mr 18 '16*
- Four engineering innovations on the Magnolia cutoff of the Baltimore and Ohio railroad. F. L. Stuart. *il diag Eng N 75:1218-22 Je 29 '16*
- Gas explosion in Cleveland water intake tunnel. *Eng N 76:187 Jl 27 '16*
- Giant among tunnels; where the Marseilles canal goes through the mountain. *il diag map Sci Am 115:478-9 N 25 '16*
- Gravel proves superior to grout on New York tunnel work. *il Eng Rec 73:526 Ap 15 '16*
- Grouting an effective remedy for stopping leakage in tunnels and shafts. J. F. Sanborn. *il diags Eng Rec 73:504-7, 581-3 Ap 15, 29 '16*
- Ingenious special devices for tunnel surveys. *diags Eng N 75:1141-2 Je 15 '16; Same. Eng & Min J 102:180-1 Jl 22 '16*
- Keeping progress record of a tunnel repair job. *Eng N 76:124-5 Jl 20 '16*
- Longest railway tunnel in America; Roger's Pass bore through the Selkirk mountains in British Columbia. *il plan Sci Am S 81:152-3 Mr 4 '16*
- Los Angeles traffic uses rebuilt highway tunnel. *il Eng Rec 73:451-2 Ap 1 '16*
- Lowering Broadway tunnel in Los Angeles. R. W. Stewart. *il diag Eng N 75:414-15 Mr 2 '16*
- Method of breaking through a submerged tunnel heading. R. E. Murphy. *Eng & Contr 45:431-2 My 10 '16*
- Methods and progress on Twin Peaks tunnel. A. J. Cleary. *il diag Eng N 76:636-7 O 5 '16*

Tunnels and tunneling—Continued

- Methods of enlargement work in Rogers Pass tunnel. H. P. Tracy. il diag Eng N 76:111-12 Ag 31 '16
- Mill creek sewer tunnel alignment survey in St. Louis. R. C. Gans. il diag map Eng N 76:110-11 Ag 31 '16
- Needle-beam heading method applied to sewer tunnel in dry ground. il Eng Rec 73:324-5 Mr 4 '16
- Pirahy tunnel in Brazil. diags Engineer 122:60 Jl 21 '16
- Plugging old water tunnels. F. A. Smith. diag plan Eng N 75:706-7 Ap 13 '16
- Progress on the Boston subway. il plan Ry R 58:393-400 Mr 18 '16
- Rapid and accurate method of cross-sectioning tunnels. T. H. Robertson. diag Ry R 59:92-3 Jl 15 '16
- Rapid tunneling in Brazil. J. C. Balcomb. il diags Eng N 75:921-6 My 18 '16
- Rock temperatures in deep tunnels recorded. E. Lauchli. Eng Rec 72:782-3 D 25 '15
- Rock tunnel 18 miles long for New York water-supply. map Eng N 76:1008 N 23 '16
- Rock-tunneling machine using pneumatic-hammer tools. il diag Eng N 76:340-1 Ag 24 '16
- Rock tunneling without the use of explosives. il Sci Am 114:657 Je 24 '16
- Rogers Pass holed through. Eng N 75:42 Ja 6 '16
- Rogers Pass soft-ground work. J. G. Sullivan. diags Eng N 75:1034-5 Je 1 '16
- Rogers Pass tunnel method chosen for economy. J. G. Sullivan. Eng N 75:382-3 F 24 '16
- Roosevelt drainage tunnel rapidly driven. Eng Rec 74:384 S 23 '16
- Shooting out tunnel heading under 150 ft. of water. Eng N 75:998 My 25 '16
- Snowsheds and tunnels on the Great Northern Ry. diags Eng N 75:1169 Je 22 '16
- Soft-ground tunneling has advanced rapidly since early days. Eng Rec 73:14 Ja 1 '16
- Survey routine in shore tunnel, Milwaukee. il Eng N 76:657-8 O 5 '16
- Technology of marble quarrying. O. Bowles. il diags U S Bur Mines Bul 106:84-8 '16
- 30-mile railway tunnel under the Cascade mountains. H. M. Chittenden. il maps Eng N 76:928-35 N 16 '16
- Tunnel construction for the Northern hospital for the insane at Sedro-Woolley. Wn. L. R. Coombs. il Concrete 9:128-9 O '16
- Tunnel drill carriages—their economic possibilities. S. P. Brown. il diags map Eng Rec 73:38-42, 77-81, 109-12 Ja 8-22 '16; Excerpts. Eng M 50:934-6 Mr '16
- Tunnel for Marseilles canal largest in world. il Eng N 76:1013-14 N 30 '16
- Tunneling for water in Oahu. K. Q. Volk. Eng N 75:498-9 Mr 16 '16
- Tunnels for electric cables. Eng N 76:633 O 5 '16
- Two buildings carried over a railway tunnel. diags Eng N 75:1072-3 Je 8 '16
- Unlined sewer tunnel in rock at Rochester. C. L. Raymond. il diags Eng N 76:883-4 N 9 '16
- Use of electric power for public works. il diags Elec R & W Elec'n 68:1017-23 Je 3 '16
- Use of motors in large tunnel construction work. il Elec W 67:1358-9 Je 10 '16
- Wall-plate drift method used for the most part in Twin Peaks tunnel, San Francisco. il diags Eng Rec 73:272-4 F 26 '16
- Wilson avenue water tunnel, Chicago. H. W. Clausen. il W Soc E J 21:373-93 My '16; Same abr. (Tunnel muck turned into concrete lining). Eng Rec 73:568-70 Ap 29 '16; Same abr. Eng N 75:969-73 My 25 '16; Abstract. Eng & Min J 102:299-301 Ag 12 '16; Discussion. W Soc E J 21:393-402 My '16
- See also* Blasting; Excavation; Railroads—Construction; Subways; Tunnel lining; Tunnel ventilation; also English Channel tunnel
- Tunnels and tunneling, Subaqueous**
- Astoria tunnel under the East river for gas distribution in New York city. J. V. Davies. il map Am Gas Light J 105:225-30, 244-7+ O 11-18 '15; Excerpts (Grouting). Eng & Contr 44:448-9 D 8 '15

- Belt conveyors a success in pneumatic tunnel construction at Boston. il Eng Rec 73:136-7 Ja 29 '16
- Channel tunnel and other projects. plan Engineer 122:388-9, 422-3 N 3-10 '16
- Construction of the Dorchester tunnels under Fort Point channel. A. A. Cohill. il plan Boston Soc C E J 3:179-88 My '16
- Device to prevent blowouts in shield tunneling. F. D. Lefingwell. il Eng N 76:728 O 19 '16
- Dorchester tunnel under Boston harbor. G. E. Wolcott. il Munic Eng 51:73-4 Ag '16
- Driving of tunnel beneath English channel awaits British parliament's consent. diag plan Eng Rec 74:645-6 N 25 '16
- East river tunnel surveys. C. M. Holland. il diags Eng N 76:655-7 O 5 '16
- Harlem river four-track subway tunnel. O. Hoff. il diags map Eng Soc W Pa 31:517-37 O '15; Same. Eng & Contr 45:520-2, 545-7 Je 7-14 '16; Discussion. Eng Soc W Pa 31:571-83 O '15
- Lowering a tunnel under the Chicago river. il diags Eng N 76:968-72 N 23 '16
- New East River tunnel, New York city. Eng & Contr 46:72 Jl 19 '16

Turbines

- Brakes for hydraulic turbines. R. E. Horton. Eng N 76:181 Jl 27 '16
- Bronzes for turbine blades. G. W. Jager. Power 43:193-4 F 8 '16
- Critical velocity in hydraulic turbine intakes. A. G. Hillberg. diags Eng Rec 72:799-800 D 25 '15
- Design of turbine draft tubes. A. G. Hillberg. Eng Rec 73:187-8 F 5 '16
- Diagram for full comparison of hydraulic turbines. R. E. Horton and W. C. Pomeroy. Eng N 75:982-6 My 25 '16
- Dishonest hydraulic-turbine specifications and bids. Eng N 75:38-9 Ja 6 '16
- 15,000 horse power vertical turbine. Sci Am S 82:133 Ag 26 '16
- Forms for heavy concrete draft-tubes. H. H. Braun. diag Eng N 76:76-7 Jl 13 '16
- How collapsible draft-tube stopper saves expense of stop-log construction. diag Elec W 68:575-6 S 16 '16
- Hydraulic power plant at the Henry Ford Farms. M. A. Replogle. il diags Am Soc M E J 38:35-7 Ja '16; Same. Power 43:28-30 Ja 4 '16; Excerpts. Eng N 74:1193 D 16 '15; Fne Rec 72:752-3 D 18 '15; Eng M 50:785 F '16; Discussion. Am Soc M E J 38:149-51 F '16
- Marmoth water turbines in Yadkin river station. il plan Elec W 68:1039-40 N 25 '16
- Memoranda on certain early types of turbines or other water wheels. C. W. Sherman. il Boston Soc C E J 3:23-5 Ja '16
- Modern turbines and new power house replace earlier French design of Yadkin river power project. il diags plan Eng Rec 74:610-13 N 18 '16
- Specific-speed diagram for hydraulic turbines. C. D. Babcock. Eng N 76:707 O 12 '16
- Ten years of evolution of hydro-electric units; with discussion. E. B. Ellicott and W. B. Jackson. W Soc E J 20:613-27 O '15
- Tennessee river hydroelectric installation being completed with modern turbines. diags Eng Rec 74:377-8 S 23 '16
- Three 31,000-hp. turbines for Yadkin plant. il diag Eng N 76:924-6 N 16 '16
- See also* Gas turbines; Steam turbines; Water wheels

Testing

- Design of a water brake. W. H. Herschel. Power 44:133-4 Jl 25 '16; Same cond. Eng N 76:378-9 Ag 24 '16
- Results of tests on high-head waterwheels. il diag plan Elec W 67:82-5 Ja 8 '16
- Testing large water wheels in winter time. Elec W 68:83-4 Jl 8 '16; Eng Rec 74:103 Jl 22 '16
- Tests of 18,000-hp. Tallulah Falls turbines. E. Lauchli. il diags Eng N 75:356-7 F 24 '16
- Turbines. Gas.** *See* Gas turbines
- Turbines. Steam.** *See* Steam turbines
- Turbo blowers.** *See* Blowers

Turkey**Industries and resources**

- Fuel in Turkey. L. Dominian. map Am Inst Min E Bul 114:1011-30 Je '16
 What Turkey and Bulgaria have to offer their Teutonic allies. map Sci Am 114:58 Ja 8 '16

Turning

- Shell turning attachment. G: Armstrong. diags Mach 22:795-6 My '16
 Turning differential spiders. C. L. Lucas. il diag Mach 22:506 F '16
 Turning eccentric bushings. N. I. Mosher. il diag Mach 22:800-1 My '16
 Turning single-throw cranks. J: Peddie. il Mach 22:331 D '15
See also Lathes

Turnouts. See Railroads—Curves and turnouts**Turntables**

- Arrangement for varying level of rail at turntable. diags Eng & Contr 46:352 O 18 '16
 Drawbridge-type locomotive turntable 100 ft. long. il diags Eng N 76:828-30 N 2 '16
 Improved turntable. il diag Ry Age 61:295 Ag 18 '16
 Pounding prevented in 100-foot Santa Fe turntable. il diag Eng Rec 74:390 S 23 '16
 Wedge tie-plates for track under turntables. diags Eng N 76:571 S 21 '16

Turpentine

- Density and thermal expansion of linseed oil and turpentine. H. W. Bearce. U S Bur Stand Tech Pa 9:1-27 '12; Supplement (tables) '15
 Turpentine industry in the southern states. C: H. Herty. il J Fr Inst 181:333-67 Mr '16; Same. Met & Chem Eng 14:427-34 Ap 15 '16
 Utilization of wood waste. A. D. Little. J Ind & Eng Chem 8:102-5 F '16; Same. Met & Chem Eng 14:133-5 F 1 '16
 Waste pine wood utilization; some of the products obtained and processes employed. J: E. Teeple. Sci Am S 81:27 Ja 8 '16

Turquoise

- Turquoise and its supposed medical properties. R. I. Geare. il Sci Am S 81:344 My 27 '16

Turtles

- Certain American turtles. R. W. Shufeldt. il Sci Am S 82:292-3 N 1 '16

Tuskegee institute

- Central station heating system at Tuskegee. il diags plans Metal Work 85:37-46 Ja 7 '16

Tuyeres. See Blast furnaces**Twilight**

- Daylight illumination, and the intensity and duration of twilight. H. H. Kimball. il Illum Eng Soc 11:399-413 no 3 '16

Twine

- Finishing of twine. Textile World 51:120 D 11 '15

Twisting machines

- Twister stop motion. diags Textile World 51:1639+ Ap 1 '16

Two-family houses. See Duplex houses**Type**

- Quality in printing. F: W. Goudy. Inland Ptr 56:516-20 Ja '16
 Suggestions for the use of italic. J. L. Frazier. Inland Ptr 57:499-502 Jl '16
 Symmetry in type-design. J. L. Frazier. Inland Ptr 56:647-8 F '16
 Type-faces and color-printing. J. L. Frazier. Inland Ptr 57:645-6 Ag '16
 Type-faces used in modern advertising. G. P. Farrar. il Inland Ptr 57:377-9 Je '16
 Typography. B: Sherbow. Inland Ptr 57:615-18 Ag '16
See also Printing; Typesetting

Typesetting

- See also* Advertisements; Linotype; Printing; Typesetting machines

Job work

- Harmonizing type and rules. J. L. Frazier. Inland Ptr 57:65-6 Ap '16
 Lines of type should be set as they are read. J. L. Frazier. Inland Ptr 56:787-8 Mr '16
 Make it readable. J. L. Frazier. Inland Ptr 56:501-2 Ja '16

- Optical center. J. L. Frazier. il Inland Ptr 58:217-19 N '16

- Points on display for compositors. J. L. Frazier. Inland Ptr 57:209-12 My '16

- Reconstruction of a booklet. J. L. Frazier. Inland Ptr 56:497-500 Ja '16

- Shape and design. J. L. Frazier. il Inland Ptr 56:785-6 Mr '16

- Suggestions for the use of text type. J. L. Frazier. Inland Ptr 57:67-8 Ap '16

- Too much copy. J. L. Frazier. Inland Ptr 57:357-8 Je '16

- Typographical interruptions. J. L. Frazier. Inland Ptr 58:65-6 O '16

Typesetting machines

- Machine composition. E. M. Keating. *See* monthly numbers of the Inland printer
 Master minds of type and press. J: S. Ritenour. Inland Ptr 56:491-2, 662-3 Ja-F '16
 Orienteype. A. P. Taylor. Inland Ptr 57:239 My '16; Same cond. Sci Am 114:508 My 13 '16
 Setting up the type for fac-simile letters by means of a typewriter keyboard. il Sci Am 115:417 N 4 '16
See also Linotype

Typewriters

- Automatic motor-driven typewriter for printing form letters. il Elec W 67:614 Mr 11 '16
 Chinese typewriter. il Sci Am 115:481 N 25 '16
 Chinese typewriter of unique design. Sci Am 115:286 S 23 '16
 Hooven electrically operated automatic typewriter. il Elec R & W Elec'n 69:738-9 O 21 '16
 Typewriter that copies with its own eye. il diag Sci Am 114:323 Mr 25 '16
 Typewriter that prints advertising copy for printers. Sci Am 115:61 Jl 15 '16
See also Phonographic writing machine

Manufacture

- Electricity in typewriter manufacture. il Elec R & W Elec'n 69:158-9 Jl 22 '16
 Some tools used in manufacturing the Corona typewriter. il Mach 22:881-4 Je '16

Typhoid fever

- Considerations in estimating the sanitary quality of water supplies. W. H. Frost. Am Water Works Assn J 2:712-22; Discussion. 723-34 D '15
 Epidemic of typhoid fever due to the use of a polluted water supply at the 1915 assembly of old Salem Chautauqua; with discussion. H. F. Ferguson. il plan Am Water Works Assn J 3:874-84 S '16
 Relationship of the epidemiologist to water works men. M. F. Boyd. Am Water Works Assn J 3:236-8 Mr '16
 Typhoid an accident under compensation law. Eng N 75:426 Mr 2 '16
 Typhoid fever from drinking water is accident; decision by Judge Ross. Eng N 76:442 S 7 '16; Same cond. Am Gas Light J 105:11 S 11 '16
 Typhoid toll. G: A. Johnson. tables Am Water Works Assn J 3:249-326 Je '16; Excerpts. Eng Rec 73:803-4 Je 17 '16; Discussion. Am Water Works Assn J 3:791-868 S '16
 Water works operator's interest in epidemiology. M. F. Boyd. Eng & Contr 44:475 D 22 '15

Typhus fever

- Serum for typhus fever. Sci Am 115:335 O 7 '16

Typographical union, Cleveland. See Cleveland typographical union**Typography. See** Printing**Tzuliutsing, China**

- Salt-wells of Tzuliutsing. H. K. Richardson. il Sci Am S 82:324-5, 328-9 N 18 '16

U**Ultra-violet rays**

- Apparatus for producing ultra-violet radiation. W. S. Andrews. il Gen Elec R 19:317-19 Ap '16
 Mode of action of ultraviolet radiation in producing sterilization. W. E. Burge. J Fr Inst 182:264-5 Ag '16

Ultra-violet rays—Continued

Protection of the eye from dangerous radiations. W. S. Andrews. *Gen Elec R* 19:86 Ja '16

Ultra-violet radiation and the eye. W. E. Burge. *Il Illum Eng Soc* 10:932-9; Discussion. 939-46 no 9 '15

Ultra-violet ray generator. *Il Elec W* 68:901 N 4 '16

Ultra-violet ray purifies water at cement plant. *Il Eng Rec* 74:200 Ag 12 '16

Unflow engines. See Steam engines

Underfeed stokers. See Stokers, Mechanical

Underground railroads. See Subways

Underground surveys

Seattle utilities pay city for subsurface maps. A. L. Valentine. *maps Eng Rec* 72:792 D 25 '15

Washington systematizes subsurface mapping. A. E. Phillips. *map Eng Rec* 74:262-3 Ag 26 '16

Underground water. See Water, Underground

Underpinning. See Shoring and underpinning

Underwear

Army knit goods styles; specifications adopted by quartermaster on wool underwear. *Textile World* 51:3925+ S 9 '16

Causes of uneven lengths in underwear. *Textile World* 51:1147 F 19 '16

Conversion cost of flat cut underwear. E. Tompkins. *Textile World* 51:835, 837+ Ja 22 '16

Inspection of knit underwear. *Textile World* 51:3643+ Ag 19 '16

Knit-underwear industry. bibliog U S Bur For & Dom Com misc ser 32:1-217 '15

Underwear emerges from depression. *Textile World* 51:655, 659 Ja 15 '16

Women's muslin-underwear industry. U S Bur For & Dom Com misc ser 29:1-184 '15

See also Hosiery; Union suits

Underwriters' laboratories

Underwriters' laboratories and the industry. W. H. Merrill. *Il Elec W* 67:1144-5 My 20 '16

Work of the Underwriters' laboratories. *Il Elec R & W Elec'n* 68:933-5 My 20 '16

Unemployed

Experiences with unemployed on road rock breaking. N. R. Martin. *Eng N* 76:755 O 19 '16

Our unemployment problem. *Eng M* 51:751-2 Ag '16

Unemployment insurance. See Insurance, Unemployment

Unfair competition. See Competition, Unfair

Uniflow engines. See Steam engines

Union Pacific railroad

Abstract of annual report. *map Ry Age* 60:233-4 F 11 '16

New line of Union Pacific R. R. through Echo Canyon, Utah. *Il Eng N* 76:700-1 O 12 '16

Union suits

Closed seamless crotch union suit. *diag Textile World* 51:4933 N 18 '16

New drop-seat union suit design. *diag Textile World* 51:1987 Ap 22 '16

Women's union suit. *diags Textile World* 51:4543 O 21 '16

Patents

Cooper patent. *Textile World* 51:2423+ My 20 '16

United engineering society

A. S. C. E. to share Engineering societies building. *Mach* 23:33 S '16

United smelting and aluminum company

New plant at New Haven, Conn. L. M. Brile. *Il Metal Ind n s* 14:86-8 F '16

United States**Aeronautics, Military**

Our blind army; precarious condition of the United States army in aeronautical equipment. *Il Sci Am* 115:11+ J1 1 '16

Wings for our eagle. *Il Sci Am* 115:471+ N 25 '16

With our airmen in Mexico. *Sci Am* 115:36 J1 8 '16

Antiquities

See also Mounds

Appropriations and expenditures

Our stupid and blundering national policy of providing public buildings. C. H. Whitaker. *Am Inst Arch J* 4:96-105 Mr '16

Army

Another point of view upon the industrialized army. *Sci Am* 115:241 S 9 '16

Appointments in the Engineer officers' reserve. *Eng & Min J* 102:314-15 Ag 12 '16

Army bills in Congress. *Sci Am* 114:345 Ap 1 '16

Burning coal in the army. M. Wilder. *Il map Coal Age* 8:1016-18 D 18 '15

Engineer officers' reserve requirements fixed. W. M. Black. *Eng Rec* 74:193-4 Ag 12 '16

Engineering methods of army post planning and design. R. C. Hardman. *diag Eng N* 75:702-4 Ap 13 '16

Engineers' reserve corps. *Am Inst Min E Bul* 116:sup13-16 Ag '16

Examinations for corps of engineers not severe. W. M. Black. *Eng Rec* 74:210 Ag 12 '16

Field artillery of the United States army. *Il Sci Am* 115:120-1+ Ag 5 '16

Increase in the corps of engineer officers. *Eng N* 75:1098 Je 8 '16

Industrial army. C. F. Talman. *Sci Am* 115:80-1 J1 22 '16

Lighting in the army; with discussion. E. D. Ardery. *Illum Eng Soc* 11:659-68 no 7 '16

Military ponton bridges used in the United States army. P. E. Barbour. *diags Eng N* 76:156-7 J1 27 '16

National calamity; emasculating the Chamberlain bill. *Sci Am* 114:524 My 20 '16

National defense—for engineer and contractor. P. S. Bond. *Il Eng Rec* 73:312-16, 351-4, 394-7, 422-5 Mr 4-25 '16

National engineer reserve act now effective. *Eng N* 76:92-3 J1 13 '16; Abstract. *Eng & Min J* 102:267 Ag 5 '16

Opportunities for civilians to become engineer officers. W. M. Black. *Eng N* 76:615-16 S 28 '16

Organization of a national engineer reserve. *Boston Soc C E J* 3:3* O '16

Organization of the United States army. M. Wells. *Il Sci Am* 115:114-15 Ag 5 '16

Organizing Officers' reserve corps, United States army. *Eng N* 76:327-8 Ag 17 '16

Our cavalry; the tactics of the mounted service of the world's armies are governed by principles established on our western plains. C. M. Maigne. *Il Sci Am* 115:124+ Ag 5 '16

Report of the conference committee on the army bill. *Sci Am* 114:548 My 27 '16

Reserve corps of engineers. U. S. A. Ry R 59:511-12 O 14 '16

Sanitary service in war. *Il Sci Am* 115:126+ Ag 5 '16

Six civilians commissioned in army engineer corps. D. C. Kingman. *Eng N* 75:38 Ja 6 '16

Spirit and purpose of the Hay army bill. *Sci Am* 115:364 O 21 '16

Unmuzzling our navy and military officers. *Sci Am* 113:514 D 11 '15

See also Cars, Armored; United States—Aeronautics, Military; United States—Defenses; United States—Militia; United States—Navy

Capitol

Capitol terraces at last made waterproof. *Il diags Eng N* 76:629-32 O 5 '16

Stephen Hallet and his designs for the national capitol, 1791-94. W. Bennett. *Am Inst Arch J* 4:290-5, 324-30, 376-83, 411-18 Je, Ag-O '16

Civilization

Education of public taste. J. B. Carter. *Am Inst Arch J* 4:7-10 Ja '16

Coast and geodetic survey

Centennial of the coast survey. *Sci Am* 114:420 Ap 22 '16

Facing hazards for the sake of precision. R. G. Skerrett. *Il Sci Am* 115:63+ J1 15 '16

- United States—Coast & geodetic survey—Cont.**
 Government engineering bureau a century old. Eng N 75:711 Ap 13 '16
 Oceanic tides with special reference to the work of the United States coast and geodetic survey. C: L. Poor. Sci Am S 81:398 Je 17 '16
 Part of the U. S. coast and geodetic survey in the development of commerce. J. H. Moore. Sci Am S 81:279 Ap 29 '16
 United States coast survey steamer Surveyor. plans Eng N 76:812-13 O 26 '16
 Wire-drag surveys and recent East river results. N. H. Heck and J. H. Hawley. chart Eng N 75:900-1 My 11 '16

Commerce

- After the war. A. B. Johnson. Eng Soc W Pa 32:195-201 Ap '16
 American competition after the war. Engineer 122:58-9 Jl 21 '16
 American exporter and his competitors. Sci Am 115:168 Ag 19 '16
 Australian markets for American hardware. W: C. Downs. U S Bur For & Dom Com misc ser 42:1-105 '16
 Coming commercial crisis. C. P. Converse. Am Ind 17:15-16 S '16
 Commercial America and the war. E: E. Pratt. Sci Am 114:241+ Mr 4 '16
 Commercial organizations of United States. U S Bur For & Dom Com misc ser 28:1-104 '15
 European war and industrial democracy. J. E. Davies. Gen Elec R 19:181-5 Mr '16; Same cond. Textile World 51:2077 Ap 29 '16
 Export trade suggestions. U S Bur For & Dom Com misc ser 35:1-140 '16
 Foreign commerce in American textiles. F. A. Vanderlip. Textile World 51:2117+ Ap 29 '16
 Foreign trade of Japan and United States. Mach 22:826-7 My '16
 Great Pan American opportunity. J: Barrett. Eng M 50:821-9 Mr '16
 Growing wealth of the United States. Met & Chem Eng 15:371 O 1 '16
 Industrial preparedness for peace. J. E. Davies. Sci Am 115:8 Jl 1 '16
 Markets for American hardware in Argentina, Uruguay and Paraguay. A. Hale. U S Bur For & Dom Com misc ser 43:1-64 '16
 Markets for American hardware in Chile and Bolivia. V. L. Havens. U S Bur For & Dom Com misc ser 41:1-190 '16
 Peruvian markets for American hardware. U S Bur For & Dom Com misc ser 39:1-64 '16
 Question of American competition. Engineer 122:13 Jl 7 '16
 South American trade. E. Anderson. Sci Am 114:349 Ap 1 '16
 Trade of the United States with the world, 1914-1915. U S Bur For & Dom Com misc ser 38:1-247 '16
See also Chamber of commerce of the United States; Chemical industries; European war—Economic aspects; Export trade; Federal trade commission; Interstate commerce commission; Merchant marine—United States; Railroads—United States; Shipping—United States; Tariff—United States; United States—Commercial policy; United States—Foreign and domestic commerce; Bureau of; United States—Industries and resources; Waterways

Bibliography

- List of references on the trade of the United States as affected by the war. Special Libraries 7:120-6 S '16

Commercial policy

- Forfeiture of "dumped" products. Iron Age 96:1475-6 D 23 '15
 International situation and future trade relations. J: B. Moore. Am Ind 16:24-5 Ja '16
 Problem of anti-dumping legislation. H: C. Emery. Iron Age 97:377-9 F 10 '16

See also Merchant marine—United States; Tariff—United States; United States—Federal trade commission

Defenses

- Address at Stevens institute. H: A. W. Wood. Stevens Ind 33:56-68 Ja '16

- All ready to serve their country; manufacturers will encourage men to enlist. Iron Tr R 58:1331-3 Je 15 '16
 Arms and the man. Sci Am 114:376 Ap 8 '16
 Automobiles and preparedness. Sci Am 115:153 Ag 12 '16
 Defense association of engineers is proposed. W: R. King. Eng Rec 73:507-8 Ap 15 '16
 Engineer reserve outlined at convention of National security league. W: B. Parsons. Eng Rec 73:173-9 F 5 '16
 Engineers adopt preparedness resolutions. Elec R & W Elec'n 68:574 Ap 1 '16; Same. Elec W 67:752 Ap 1 '16
 Engineers and contractors are vital factors in plans for military preparedness. L. Wood. Eng Rec 72:739-40 D 11 '15
 Engineers' interest in preparedness. Eng Rec 72:713 D 11 '15
 Fixation of atmospheric nitrogen as a factor of national defense. Elec W 67:329-30 F 5 '16
 Increasing our means of defense. G: P. Perrine. Sci Am 114:79 Ja 15 '16
 Industrial militarism; government training to develop the individual. J: L. Mahin. Sci Am S 81:150-1 Mr 4 '16
 Industrial preparedness. W. L. Saunders. Iron Age 97:265 Ja 27 '16
 Industrial preparedness; discussion by Am. Soc. M. E. Am Soc M E J 38:435-55 Je '16
 Need of organizing our resources. E. Anderson. Sci Am 114:281 Mr 11 '16
 Our railroads and national defense. C: O. Haines. Ry Age 60:55-6 Ja 14 '16
 Paved highways and national defense. P. S. Bond. Eng & Contr 45:387-8 Ap 26 '16
 Plan for military preparedness. W: M. Walton. Sci Am 114:325 Mr 25 '16
 Preparedness. W. Wilson. Ry R 58:173-4 Ja 29 '16
 Preparedness and our railroads. G: D. Dixon. Ry R 57:751-4 D 11 '15; Same. Ry Age 59:1084-6 D 10 '15; Same cond. (Adequate railway systems) Eng Rec 72:737-8 D 11 '15; Excerpts. Am Ind 16:16 Ja '16
 President asks help of engineers for national defense. Eng Rec 73:129 Ja 22 '16
 Private works and the army appropriation. Iron Age 98:354-5 Ag 17 '16
 Problem of preparedness. W. L. Saunders. Met & Chem Eng 14:259-60 Mr 1 '16
 Question of national defence. R. L. Gordon. Sci Am 114:59 Ja 8 '16
 Railroads and national defense. Ry R 58:107-8 Ja 15 '16
 Railway co-operation in national defense. Ry R 58:184 Ja 29 '16
 Railway military preparedness. C. B. Baker. Elec Ry J 47:348-50 F 19 '16
 Railway preparedness for national defense. H: W. Jacobs. Ry R 59:37-8 Jl 8 '16
 Requirements of our railways in a system of national defense. C: H. Markham. Ry Age 59:1229-31 D 31 '15
 Retrospect of the year 1915; national defense. Sci Am 114:6 Ja 1 '16
 Taking a census of industry for preparedness. Eng Rec 73:100-1 Ja 22 '16
 Warning. Sci Am 115:384 O 28 '16

See also Council of national defense; Munitions of war; Naval consulting board; Railroads in war; United States—Army; United States—Industries and resources; United States—Militia; United States—Naval militia; United States—Navy; Volunteer patrol squadron

Description and travel

See also Lincoln highway

Foreign and domestic commerce, Bureau of

- Building up our foreign commerce. Elec R & W Elec'n 68:250 F 5 '16

Foreign relations

See also Monroe doctrine

Mexico

- Mexican situation. Sci Am 115:4 Jl 1 '16

Geological survey

- Surface-water investigations; U. S. geological survey. J: C. Hoyt. Eng N 74:1213 D 23 '15

United States—Continued

Industries and resources

- American conquest of the air. T: H. Norton. *il Sci Am* 114:247+ Mr 4 '16
- America's industrial organization for national defense. T: Robins. *il Sci Am* 115:40+ Jl 8 '16
- Bed-rock legislation for preparedness. M. MacLaren. *il Sci Am* 115:351 O 14 '16
- Capitalization in two years of war. *Am Ind* 17:17-19 Ag '16
- Census of the artificial dyestuffs used in the United States. T: H. Norton. *J Ind & Eng Chem* 8:1039-48 N '16
- Council of national defense. H. E. Coffin. *Eng M* 51:789-97 S '16
- Dyestuff situation in the United States at the close of 1915. T: H. Norton. *J Ind & Eng Chem* 8:166-72 F '16
- Economic preparedness. F. K. Lane. *Sci Am* 114:237+ Mr 4 '16
- Glimpses of new Pacific coast industries in the making. *il Met & Chem Eng* 15:285-8, 511-13 S 15, N 1 '16
- Industrial inventory by engineers will stabilize nation's business in crisis; interview with H. E. Coffin. R. K. Tomlin, jr. *Eng Rec* 74:128-30 Jl 29 '16
- Industrial lessons from the German war machine. C. E. Knoeppel. *Eng M* 51:167-76 My '16; Excerpt. *Metal Work* 85:752 Je 2 '16
- Industrial preparedness. *Am Soc M E J* 38:731-3 S '16
- Industrial preparedness and the engineer. W: L. Saunders. *Eng M* 51:481-4 Jl '16
- Industrial preparedness; discussion by Am. Soc. M. E. *Am Soc M E J* 38:435-55 Je '16; Same cond. *Iron Tr R* 58:880-7 Ap 20 '16; Same cond. *Iron Age* 97:1000-3 Ap 27 '16
- Industrial preparedness for peace. J. E. Davies. *Sci Am* 115:8 Jl 1 '16
- Industrial preparedness for peace. M. Chipman. *Sci Am* 114:78+, 144-5, 196+, 240+, 300+, 400+, 526+ Ja 15, F 5, 19, Mr 4, 18, Ap 15, My 20 '16
- Industrial preparedness for peace. T: H. Norton. *Sci Am* 114:177+ F 12 '16
- Industrial preparedness for peace, division of labor in chemical research. C. A. Jacobson. *Sci Am* 115:80 Jl 22 '16
- Industrial-preparedness report. *Eng & Min J* 102:352 Ag 19 '16
- Made in America; symposium. *Met & Chem Eng* 15:382-4 O 1 '16
- Mobilization of material and industrial resources. A. L. Humphrey. *il diags Eng Soc W Pa* 32:381-432 Je '16; Same cond. *Iron Age* 98:234-8 Ag 3 '16; Same cond. *Ry R* 58:882-5 Je 17 '16
- Mobilizing our industrial resources. S. Miller. *Iron Tr R* 58:815-16 Ap 13 '16; Same cond. *Iron Age* 97:718-19 Mr 23 '16
- Naval consulting board's committee on industrial preparedness. *Sci Am* 114:348, 381 Ap 1-8 '16
- Our development and our power; from Secretary Lane's report. *Eng M* 50:767-9 F '16
- Our new industries. E: E. Pratt. *il Sci Am* 114:586+ Je 3 '16
- Personal experiences during the industrial upheaval that followed the outbreak of the war; an interview with Thomas Alva Edison. *Sci Am* 115:497 D 2 '16
- Plan outlined for mobilizing nation's resources as preparedness measure. P. S. Bond. *il Eng Rec* 73:543-5 Ap 22 '16
- Preparedness after war. *Eng M* 51:589-90 Jl '16
- Preparedness for peace in the mineral industries; what is being done to eliminate waste. S. B. Stone. *il Sci Am* 114:350-1+ Ap 1 '16
- Preparedness in the chemical industries. *Sci Am* 114:236 Mr 4 '16
- Preparedness is ability to do things. H: L. Gantt. *Iron Tr R* 58:936 Ap 27 '16
- Preparing our industries for the coming test. E: N. Hurley. *Eng M* 51:798-803 S '16
- Presidential address at meeting of the American electrochemical society. F. A. J. Fitzgerald. *Met & Chem Eng* 15:381-2 O 1 '16
- Realizing industrial preparedness; an inventory of our resources. W. S. Gifford. *Sci Am* 114:576+ Je 3 '16

- Taking a census of industry for preparedness. *Eng Rec* 73:100-1 Ja 22 '16
- War and American chemical industry. R. F. Bacon. *J Ind & Eng Chem* 8:547-53 Je '16
- What the war has taught American industries. *Sci Am* 114:658 Je 24 '16
- Why our chemical import statistics should be overhauled. B. C. Hesse. *J Ind & Eng Chem* 8:1050-3 N '16; Same. *Met & Chem Eng* 15:515-18 N 1 '16; Same cond. *Textile World* 51:4443 O 14 '16; Discussion. *Met & Chem Eng* 15:505 N 1 '16
- Why standardize machine tools? L. P. Alford. *Iron Tr R* 58:934-6 Ap 27 '16; Same. *Am Soc M E J* 38:148-9 Je '16
- See also* Automobile industry and trade—United States; Chemical engineers; Chemical industries; Dye industry; Electric industries—United States; Mines and mineral resources—United States; Petroleum—United States; Potash; United States—Commerce; Water power—United States

Insular possessions

See Philippine Islands

Justice, Department of

- Good faith of the government at stake in the proposed bill for the building of the Department of justice. *Am Inst Arch J* 3:4-5 Ja '16

Labor, Department of

- Labor department and the railroads. W. L. Stoddard. *Ry Age* 59:1132-3 D 17 '15

Library of Congress

See Library of Congress

Manufactures

- See* United States—Industries and resources

Merchant marine

See Merchant marine—United States

Military academy

- Views. *Arch Rec* 40:174-82 Ag '16

Militia

- Federalization that would be fatal. *Sci Am* 114:444 Ap 29 '16
- Labor and the national guard. W. B. Rice. *Sci Am* 114:197 F 19 '16
- Men behind the men. *Sci Am* 115:36 Jl 8 '16
- Militarism and the militia. *Sci Am* 114:396 Ap 15 '16
- National guard. *Sci Am* 114:59 Ja 8 '16
- National guard engineer corps. L: D. Koop. *il Eng N* 75:884-5 Ms 11 '16
- Problem of the national guard. *Sci Am* 114:151 F 5 '16

See also United States—Naval militia

Mobilization, 1916

- American railway association's co-operation with the military authorities; report. *Ry R* 59:138-40 Jl 29 '16
- Mobilization of the militia. *Sci Am* 115:76 Jl 22 '16
- Railroads and the national guard. *Ry Age* 60:1597-8 Je 30 '16
- Report of A. R. A. committee on mobilization. *Ry Age* 61:150-1 Jl 28 '16
- Report of A. R. A. special committee on military preparations. *Ry Age* 61:908-9 N 17 '16
- Report of committee of New York electric railway association on movement of troops. *Elec Ry J* 48:20-3 Jl 1 '16
- War department's statement on the railroads' service in movement of troops. *Ry R* 59:242-3 Ag 19 '16
- With the 22d corps of engineers at Camp Whitman. R. K. Tomlin, jr. *il Eng Rec* 74:4-9 Jl 1 '16

Mines, Bureau of

- Bureau of mines and American radium production. *Met & Chem Eng* 15:275-6 S 15 '16
- Bureau of mines in 1915. V. H. Manning. *Coal Age* 9:128-9 Ja 15 '16
- Bureau of mines' studies of occupational diseases. W. A. Lynott. *J Ind & Eng Chem* 8:1062-4 N '16

United States—Mines, Bureau of—Continued

- Extraction of radium, etc., by the U. S. Bureau of mines. C: H. Viol. J Ind & Eng Chem 8:660-2 J1 '16
 Mine experiment stations named. Eng & Min J 102:294 Ag 12 '16
 Production of radium by the Bureau of mines. C: H. Viol. J Ind & Eng Chem 8:284-6 Mr '16
 Proposed gasoline specifications of Bureau of mines. Met & Chem Eng 15:557-9 N 15 '16

National parks

See National parks

Naval academy

- Merit in place of politics. Sci Am 114:296 Mr 18 '16

Naval consulting board

See Naval consulting board

Naval engineering experiment station

- U. S. naval engineering experiment station at Annapolis, Md. W: L. DeBaufre. il Sci Am S 81:72-4 Ja 29 '16

Naval militia

- Naval militia and preparedness. W: J. Willis. il Sci Am 114:139+ F 5 '16
 Preparedness and the naval militia. Sci Am 114:140 F 5 '16

Navy

- Annual report of the U. S. navy department. Engineer 121:129-30 F 11 '16
 Bids for new warships. Iron Age 98:990-1 N 2 '16
 Citizens' naval bill. Sci Am 115:186 Ag 26 '16
 Cruise of the civilian naval volunteers. il Sci Am 115:189+ Ag 26 '16
 Cruisers require larger appropriations. Iron Age 98:1060-1 N 9 '16
 Engineering in the navy. W: L. R. Emmet. Gen Elec R 18:1097-8 D '15; Same. Sci Am S 81:216 Ap 15 '16
 Engineers and the navy. K. L. Martin. Stevens Ind 33:122-5 Ap '16
 Enlisted man in the United States navy. il Sci Am S 82:280 O 28 '16
 First Diesel-engined vessel for the United States navy. Int Marine Eng 20:532-3 D '15
 Inverted pyramid. Sci Am 114:504 My 13 '16
 Lay aft all civilian volunteers; jottings on the naval training cruise. R. F. Williams. il Sci Am 115:278-9 S 23 '16
 Life of a naval volunteer. E. B. Marshall. Sci Am 115:279+ S 23 '16
 Modernizing specifications in the Navy department. Eng N 76:512-13 S 14 '16
 Naval coal requirements. Coal Age 8:972 D 11 '15
 Naval preparedness and the civilian engineer. F. J. Sprague. W Soc E J 21:159-92; Discussion. 192-202 F '16
 Naval reserve force; a portion of a bill approved by Congress August 29, 1916. Sci Am S 82:250-1 O 14 '16
 Navy as a career for young men. Sci Am 115:432 N 11 '16
 Navy we need. Sci Am 114:54 Ja 8 '16
 Need of the United States for naval scouts and an auxiliary coast-patrol. Sci Am 115:204 S 2 '16
 New ships for the American navy. Engineer 122:301 O 6 '16
 Our future naval policy. Sci Am 114:99 Ja 22 '16
 Our navy as a schoolhouse. E. K. Roden. il Sci Am 114:218-19 F 26 '16
 Provisions of a record-breaking navy bill. Iron Age 98:458-9 Ag 31 '16
 Recent cruise of patrol squadron no. 1; work of part of the Mosquito fleet. O. D. Munn. il Sci Am 115:302-3 S 30 '16
 Secretary Daniels and the naval emergency. Sci Am 114:216 F 26 '16
 Ships of our new naval program. Sci Am 115:316 O 7 '16
 Speedy patrol boats for the U. S. navy. il Sci Am 114:122+ Ja 29 '16
 State socialism and our navy. L. W. Moffett. il Iron Tr R 58:16-18 Ja 6 '16
 Supply ships of the navy. il Sci Am 114:122 Ja 29 '16

- U. S. submarine tender Bushnell. G. E. Davies. diag Engineer 122:323-4 O 13 '16

Unmuzzling our naval and military officers. Sci Am 113:514 D 11 '15

Well rounded fleet. Sci Am 113:552 D 25 '15

What is adequate naval preparedness? Sci Am 114:614 Je 10 '16

Why America lost second place. il Sci Am 114:555 My 27 '16

Why the navy needs a research laboratory. Eng M 50:609-10 Ja '16

See also Naval consulting board; United States—Defenses; Warships—United States

Navy department

Is our naval programme imperilled? Sci Am 115:472 N 25 '16

Ordnance, Bureau of

Metallography of steel for United States naval ordnance; requirements of the Bureau of ordnance. H. E. Cook. il Am Inst Min E Bul 110:375-400 F '16; Same. Iron Tr R 58:379-88 F 17 '16

Patent office

Patent office reorganization. Sci Am 114:244 Mr 4 '16

Patent office transactions for fiscal year ending June 30, 1915. Sci Am 114:133+ Ja 29 '16
 Patent searches. T. H. Low. Sci Am 115:81 J1 22 '16

See also Patent laws and legislation

Preparedness

See United States—Defenses; United States—Industries and resources

Public buildings

See Public buildings

Public health service

Government and student free engineering service. Eng N 75:1052-3, 1056; 76:36-7, 180-1, Je 1, J1 6, 27 '16

Public lands

See Forest reserves; National parks

Public roads, Office of

Office of public roads prescribes rules for federal-aid appropriations. Eng Rec 74:405-6 S 30 '16; Same abr. Eng & Contr 46:305 O 4 '16

U. S. Office of public roads reorganized. Eng Rec 74:615 N 18 '16; Abstract. Eng N 76:961 N 16 '16

What the United States government is doing for the good roads movement. L. W. Page. Good Roads n s 11:17-18 Ja 1 '16

Railroads

See Railroads—United States

Reclamation service

See Reclamation service (United States)

Roads

See Roads—United States

Shipping

See Shipping—United States

Standards, Bureau of

Development of the Bureau of standards. F: Nicholas. il Elec W 66:1244-8 D 4 '15

Electrical work of the Bureau of standards. F: Nicholas. il Elec W 66:1359-62 D 18 '15

Important work of Bureau of standards. Iron Age 97:207-8 Ja 20 '16

Leadership through industrial research. Eng Rec 74:639 N 25 '16

Life testing of incandescent lamps at the Bureau of standards. G. W. Middlekauff, R. Mulligan and J. F. Skogland. il diag Illum Eng Soc 10:814-37; Discussion. 837-42 no 8 '15

Nation's research laboratory. il Sci Am 115:42-3 J1 8 '16

Recent developments in scientific instruments and materials. E: Schramm. Met & Chem Eng 15:574-7 N 15 '16

Rise of the Bureau of standards. Sci Am 114:320 Mr 25 '16

United States—Standards, Bureau of—Cont.

U. S. Bureau of standards and engineering abroad. *Sci Am* 114:356 Ap 1 '16

What the Bureau of standards has done for the clay industries. *il Sci Am* 115:328-9 O 7 '16

What will we do for science? *Sci Am* 115:492 D 2 '16

Treasury

Recent changes in the net balance in the United States treasury. *H. S. Chase. J Account* 21:16-23 Ja '16

Weather bureau

How the United States Weather bureau was started. *C. Abbe. Sci Am* 114:529 My 20 '16

New work of the Weather bureau. *Sci Am* 115:323 O 7 '16

United States independent telephone association

National independent telephone association and the Independent association of America hold joint convention and merge to form United States independent telephone association. *Elec R & W Elec'n* 67:1120-1 D 18 '15

United States smelting, refining and mining co.

Report for 1915. *Eng & Min J* 101:1063-4 Je 17 '16

United States steel corporation

No Steel corporation rebates. *Ry Age* 59:1131-2 D 17 '15

Report for 1915. *Eng & Min J* 101:570-1 Mr 25 '16; *Iron Age* 97:727-9 Mr 23 '16; *Iron Tr R* 58:658-61 Mr 23 '16

United Verde copper company

Copper smelting at the United Verde copper company. *il Met & Chem Eng* 15:251-3 S 1 '16

Units

See also Circular mil; Electric measurement; Horsepower; Magnetic units; Metric system; Weights and measures

Units, Electric. See Electric units**Universal joint. See Joints****Universe**

Electrical universe. *Sci Am S* 81:11 Ja 1 '16
Structure of the universe. *H. S. Jones. Sci Am S* 80:370-1, 391 D 11-18 '15

See also Cosmogony

Universities. See Colleges and universities**Unloaders. See Loading and unloading****Unsinkable ships. See Ships, Unsinkable****Upholstery**

See also Automobiles—Upholstery

Uranium

Experiments on the separation of vanadium from crude sodium uranate. *H. H. Barker and H. Schlundt. Met & Chem Eng* 14:18-23 Ja 1 '16

Extraction and recovery of radium, uranium and vanadium from carnotite. *C. L. Parsons and others. il U S Bur Mines Bul* 104:1-124 '15; Abstracts. *Eng & Min J* 100:964 D 11 '15; *Met & Chem Eng* 13:965; 14:51-3 D 15 '15-Ja 1 '16; *J Ind & Eng Chem* 8:48-53 Ja '16

Uranium steel

Electric furnace steels and alloy steels; discussion. *J Ind & Eng Chem* 8:949-50 O '16
Uranium high-speed steel tests. *Mach* 23:142 O '16

Uranium in tool steel. *Iron Age* 97:952 Ap 20 '16; Same. *Eng & Min J* 102:224 Jl 29 '16; Same. *Ry Mech Eng* 90:540 O '16

Urea

Action of certain acid reagents on the substituted ureas and thiazole. *F. B. Dains. R. C. Roberts and R. Q. Brewster. Am Chem Soc J* 38:131-40 Ja '16

Comparative study of the distribution of urea in the blood and tissues of certain vertebrates with especial reference to the hen. *W. G. Karr and H. B. Lewis. Am Chem Soc J* 38:1615-20 Ag '16

Urinals

Urinal as a sanitary fixture. *J. Graham. diags Dom Eng* 74:98-100, 132-4, 165-7 Ja 22-F 5 '16

Urinal installations in city schools. *diags Met-ural Work* 85:440 Mr 31 '16

Uruguay**Commerce**

Lumber markets of the east coast of South America. *R. E. Simmons. il U S Bur For & Dom Com* 112:9-64 '16

Markets for American hardware in Argentina, Uruguay and Paraguay. *A. Hale. U S Bur For & Dom Com misc ser* 43:1-64 '16

Uruguay. *D. Beecroft. il Automobile* 35:695-8 O 26 '16

Commercial policy

Report on trade and tariffs. *U S Fed Tr Comm* p 80-105 '16

Utah

See also Coal mines and mining—Utah; Geology—Utah; Mines and mineral resources—Utah

Utilities bureau

Functions of the Utilities bureau. *Munic Eng* 50:5 Ja '16

Utility galleries. See Subways (conduits)**V****Vacuum**

Is there power in vacuum? *L. E. Kenney. Power* 43:300-1 F 29 '16

Vacuum cleaners

Canadian Northern vacuum cleaner for coaches. *diags Ry Mech Eng* 90:27 Ja '16
Connersville vacuum cleaner. *il diags Heat & Ven* 13:52-3 S '16; *Elec W* 68:635-6 S 23 '16

Electric vacuum cleaner with inclosed dust bag. *il Elec W* 67:114 Ja 8 '16

Vacuum cleaner for use in factories. *il Elec W* 66:1387-8 D 18 '15

Manufacture

Plant for making electric vacuum cleaners. *il Iron Age* 98:513-16 S 7 '16

Vacuum flasks. See Thermos bottles**Vacuum furnaces. See Electric furnaces****Vacuum pumps**

Automatic vacuum pump. *O: Maass. diag Am Chem Soc J* 37:2654-6 D '15

Capacity of vacuum heating pumps. *Metal Work* 85:555 Ap 21 '16

Condensation pump, an improved form of high vacuum pump. *I. Langmuir. diags Gen Elec R* 19:1060-71 D '16

Economy vacuum pump. *il Metal Work* 86:388 S 22 '16

Electrically operated vacuum pump by the Ingersoll-Rand co. *il Elec W* 66:938 O 23 '15; *Elec R & W Elec'n* 67:777 O 23 '15; *Iron Age* 96:882 O 14 '15; *Met & Chem Eng* 13:769-70 O 15 '15; *Power* 42:711-12 N 23 '15; *Ry Age (Mech ed)* 89:594 N '15; *Coal Age* 8:932-3 D 4 '15; *Iron Tr R* 57:1089 D 2 '15

High-vacuum mercury pump; abstracts. *I. Langmuir. diag Elec W* 68:283-4 Ag 5 '16; *Am Soc M E J* 38:838-9 O '16

Improved electric vacuum pump. *il Elec W* 68:191 Jl 22 '16

Ingersoll-Rogier vacuum pump. *il Power* 43:391-2 Mr 21 '16; *Eng M* 51:sup5-6 My '16

Lecture course on elements of heating. *C. A. Fuller. il diag Metal Work* 86:138-9 Ag 4 '16

May-Nelson electric vacuum pump. *il Elec R & W Elec'n* 69:172 Jl 22 '16

Mercury-vapor pump; abstract. *H. B. Williams. Elec W* 67:1372 Je 10 '16

Motor-driven vacuum pump for residence heating system. *il Elec R & W Elec'n* 68:170 Ja 22 '16

Nash hydro-turbine vacuum and air line pumps. *il Heat & Ven* 12:53-4 D '15

Nash return line heating pump. *diags Heat & Ven* 13:56-8 Jl '16; *Eng M* 52:sup2-3 O '16; *Metal Work* 86:327 S 8 '16; *Elec W* 68:971 N 11 '16

New pump for high-vacuum service. *il Iron Age* 97:538 Mr 2 '16

New vacuum apparatus; Westinghouse-Leblanc air-ejector system. *G. L. Kothay. il diags Int Marine Eng* 20:556-8 D '15

Powers electric motor-driven vacuum pump. *Heat & Ven* 13:51 Mr '16

Vacuum pumps—Continued

- Powers electric motor-driven vacuum pump. *il* Dom Eng 74:17-18 Ja 1 '16
- Pump efficiency improved. T: G. Thurston. *diag* Power 43:56 Ja 11 '16
- Simple vacuum pump. C: E. Duryea. *diag* Sci Am S 81:197 Mr 25 '16
- Vacuum-pump test results. H: A. Cozzens, jr. Power 43:684-5 My 16 '16

Vacuum separators

- Grading industries. E: S. Wiard. *il* *diag* Met & Chem Eng 14:91-2 Ja 15 '16

Vacuum tubes

- First electrically lighted vacuum tube. W. S. Andrews. *Gen Elec R* 19:414 My '16
- Neon-helium tubes as rectifiers and voltage reducers. F. Schroeter. *diags Elec W* 67:441-2 F 19 '16
- Pliotron oscillator for extreme frequencies. W: C. White. *il* *diags Gen Elec R* 19:771-5 S '16; *Abstract, Elec W* 68:774-5 O 14 '16
- Taking direct current for telephone and signal circuits from commercial lighting networks; abstract. F. Schroeter. *diags Elec W* 67:330-1 F 5 '16

Vail, Theodore Newton, 1845-

- Portrait. *J Fr Inst* 182:100 Jl '16

Valence (chemistry)

- Organic molecular compounds. J. F. Norris. *Am Chem Soc J* 38:702-11 Mr '16
- Valence theory of J. Stark from a chemical standpoint; abstracted by Dorothy A. Hahn and Mary E. Holmes. *diags Am Chem Soc J* 37:2611-26 D '15

Valence (word)

- Inadequacy and inconsistency of some common chemical terms. C. Hering. *Met & Chem Eng* 15:649-50 D 1 '16

Valparaiso, Chile**Harbor**

- Valparaiso port works. *map Engineer* 121:190-1 Mr 3 '16

Valuation

- Accurate appraisals by short methods. J: G. Morse. *Am Soc M E J* 38:878-81 N '16
- Balance sheet valuations. E: D. Page. *J Account* 21:241-54 Ap '16
- California commission on four valuation questions. *Eng Rec* 72:697-8 D 4 '15
- Depreciating overhead charges; supplementary note and glossary of terms. B. J. Arnold. *Elec Ry J* 47:498-9 Mr 11 '16
- How buildings were appraised in revaluation of real property of Los Angeles. J. C. Banister. *Eng Rec* 73:472-5 Ap 8 '16
- How to appraise water rights. H. Barker. *Eng N* 75:1179-82 Je 22 '16
- Perpetual inventory and appraisal values. C: Piez. *Iron Age* 98:1227+ N 30 '16; Same. *Factory* 17:668-71 D '16; Same cond. *Am Soc M E J* 38:965-6 D '16
- Post-mortem appraisal of industrial plant. C: H. Higgins. *il* *Eng N* 76:600-2 S 28 '16
- Principles of natural-gas leasehold valuation. S: S. Wyr. *Am Inst Min E Bul* 112:747-60 Ap '16; Same cond. *Iron Tr R* 59:267-70 Ag 10 '16; Discussion. *Am Inst Min E Bul* 120:2228-30 D '16
- Productive capacity a measure of value of an industrial property. H. L. Gantt. *Am Soc M E J* 38:876-8 N '16
- Symposium on inventories and appraisals of properties. C. L. Cory; W. C. Vincent, jr.; W. J. Norton. *Am Inst E E Pro* 34:2131-58 S '15; Discussion. 35:236-63 F '16
- United States civil service examination for valuation analyst. *Am Gas Light J* 104:247 Ap 17 '16
- Valuation—its present status. *Eng Rec* 73:8-9 Ja 1 '16
- Valuation of industrial properties vs. valuation of industrial methods. W. N. Polakov. *Am Soc M E J* 38:966-7 D '16
- Valuation of oil properties. D. Hager. *Eng & Min J* 101:930-2 My 27 '16

- Value of a used car. W. T. Fishleigh. *Horseless Age* 37:416-17+ Je 1 '16

See also Depreciation; Electric plants—Valuation; Electric railroads—Valuation; Electric service companies—Valuation; Gas companies—Valuation of property; Machinery—Valuation; Mine valuation; Public utilities—Valuation; Railroads—Valuation; Sewerage—Valuation; Street railroads—Valuation; Waterworks—Valuation

Terminology

- Attempt to standardize valuation terms. *Eng N* 76:787-8 O 26 '16

Value

- Ascertainment of value and profits from books of account. J. A. McKenna. *J Account* 21:192-205 Mr '16
- See also* Prices

Valves

- Automatic cushioned controlling float valve. *il* *Textile World* 51:4749 N 4 '16
- Balanced piston steam valve gears for Imperial duplex air compressors. *il* *Eng & Contr* 45:24-5 Ja 5 '16
- Beveled seats for pump valves. *il* *Power* 44:696 N 14 '16
- Burning-on valve seats. J. L. Sendner. *diag Foundry* 44:28 Ja '16
- Butler back water valve and floor drain. *il* *Dom Eng* 74:180 F 5 '16
- Check valve for suction flasks. G. P. Walton. *diags J Ind & Eng Chem* 8:57 Ja '16
- Compressor valve stuck open. T: G. Thurston. *Power* 43:188 F 8 '16
- Crane engine stop valve. *il* *Power* 44:748 N 28 '16
- Design and operation of fractional valves. J. A. Donnelly. *diag Metal Work* 86:214-15 Ag 18 '16; Same. *Dom Eng* 76:290-1 Ag 26 '16; Same cond. *Power* 44:366 S 5 '16
- Detroit ball valve. *diag Ry Mech Eng* 90:155 Mr '16
- Direct and indirect valves. H. A. Everett; C. J. Mason. *Int Marine Eng* 21:470 O '16
- Facing of poppet-valve seats. L: F. Lyne. *diag Power* 43:17 Ja 4 '16
- Failure of manganese valve castings; abstract. P. D. Merica and C. P. Karr. *Met & Chem Eng* 15:652 D 1 '16
- Feed pump valves. A. L. Haas. *Int Marine Eng* 21:509-10 N '16
- Ford check and stop valves. *diags Power* 43:289 F 29 '16
- Four types of pressure valves. *il* *diags Metal Work* 86:575-6 N 3 '16
- Gorton packless valve. *il* *Metal Work* 85:426 Mr 24 '16
- High pressure valve without packing. *il* *Am Gas Light J* 104:125 F 21 '16
- Improved Howard ball blowoff valve. *diag Power* 43:599 Ap 25 '16
- Increasing the life of rubber pump valves. T. Ryan. *il* *Coal Age* 9:485 Mr 18 '16
- Jenkins valve-throttling nut. *il* *Power* 43:49 Ja 11 '16
- Locknuts on valve stem. J. L. Ball. *il* *Power* 44:730 N 21 '16
- Metal diaphragm valve. *il* *Heat & Ven* 12:52-3 D '15
- Multiplate valves. *il* *diags Ry Age* 60:440-1 Mr 10 '16; Same. *Ry Mech Eng* 90:153-4 Mr '16
- New application of the Bunsen valve. A. Leighton. *diag J Ind & Eng Chem* 8:1037-8 N '15
- New design of check valve. *il* *Eng N* 75:96 Ja 13 '16
- Nonreturn stop valves. *diags Power* 43:72-6, 104-8 Ja 18-25 '16
- Piston throttle valve. *diag Engineer* 122:330 O 13 '16
- Piston valve chamber for slide valve cylinders. *diags Ry Age* 61:296 Ag 18 '16; Same. *Ry Mech Eng* 90:430 Ag '16
- Recutting valve-seat threads on the drill press. E. B. Simpson. *il* *Power* 42:903 D 28 '15
- Reducing valve connections and control arrangement. *diag Elec W* 66:1318 D 11 '15
- Rotary check valves suitable for pumps on pressure lines. *il* *diags Elec W* 67:614-15 Mr 11 '16
- Scott water-sealed automatic back pressure valve. *il* *Heat & Ven* 13:51 S '16

Valves—Continued

- Simplate valve—its construction and operation, diags Eng & Contr 44:297-8 O 13 '15; Ry Age (Mech ed) 89:545-6 O '15; Eng & Min J 100:805-6 N 13 '15; Eng M 50:sup4-5 N '15; Int Marine Eng 20:524 N '15; Power 42:615-16 N 2 '15; Mach 22:346 D '15; Coal Age 8:934 D 4 '15
- Smolensky check valves, diags Power 44:202 Ag 8 '16
- Stickle special radiator valve, il Dom Eng 74:242 F 19 '16
- Trip gear for Corliss valves, diags Power 42:864 D 21 '15
- Troubles and care of ammonia compressor valves, A. G. Solomon, diags Power 43:643-5, 767-8; 44:2-3 My 9, 30, JI 18 '16
- Turbine valve seat, C. G. Thatcher, il Sibley J 30:229-30 Ap '16
- Two causes for engine wrecks, H. E. Collins, diags Power 43:249-51 F 22 '16
- Universal nonpacking valve, il Power 43:71 Ja 18 '16
- Valve action designed to reduce power loss, diags Automobile 34:371 F 24 '16
- Valve details of univalve unaflow steam engine, diags Power 43:727 My 23 '16
- Vincent automatic drain valve, il diags Power 44:714 N 21 '16
- Wetmore hydrant valve, diag Munic J 41:367 S 21 '16
- Wrongly installed valves in refrigeration plant, T. G. Thurston, Power 42:898-9 D 28 '15
- Yergens check acting blow-off valve, diag Ry R 58:217 F 5 '16
- Yoder thermo valve, il Dom Eng 73:344 D 11 '15
- See also* Automobile engines—Valves; Gas and oil engines—Valves; Locomotives—Valves and valve gear; Safety valves; Steam engines

Repair

- Holding distributing valves in making repairs, E. H. Wolf, diags Ry Mech Eng 90:142 Mr '16

Valves, Hydraulic

- Automatic hydraulic control valve; abstract, diags Am Soc M E J 38:350 Ap '16
- Housing for gate valves, diag Eng & Contr 46:46 JI 12 '16
- Replacing a reservoir scour valve against pressure, F. C. Kendall, diag Eng N 76:173-4 JI 27 '16
- Valves for use in water works; abstracts, G. H. Finneran; J. M. Diven, Am Soc M E J 38:425-6 My '16

Vanadic acid

- Estimation of vanadic acid, after reduction by metallic silver, G. Edgar, Am Chem Soc J 38:1297-1302 JI '16
- Reduction of vanadic acid by hydriodic acid, G. Edgar, diags Am Chem Soc J 38:2369-77 N '16

Vanadium

- Electrolysis of vanadium salt solutions, S. Fischer, jr, Met & Chem Eng 15:476 O 15 '16
- Electrometric titration of vanadium, G. L. Kelley and J. B. Conant, diag Am Chem Soc J 38:341-51 F '16
- Experiments on the separation of vanadium from crude sodium uranate, H. H. Barker and H. Schlundt, Met & Chem Eng 14:18-23 Ja 1 '16
- Extraction and recovery of radium, uranium and vanadium from carnotite, C. L. Parsons and others, il U S Bur Mines Bul 104:1-124 '15; Abstracts, Eng & Min J 100:964 D 11 '15; Met & Chem Eng 13:965; 14:51-3 D 15 '15-Ja 1 '16; J Ind & Eng Chem 8:48-53 Ja '16
- New organic compounds of vanadium, A. T. Mertes and H. Fleck, J Ind & Eng Chem 7:1037-8 D '15
- Prominent mines of Junin, Peru, J. T. Singewald and B. L. Miller, Eng & Min J 102:583-5 S 30 '16

Vanadium steel

- Cast vanadium steel dies, il Iron Age 96:1351-2 D 9 '15; Iron Tr R 57:1286 D 30 '15
- Vanadium cast steel locomotive frames, Ry R 59:183 Ag 5 '16

Vanadium steel in battle aeroplanes, il Iron Age 97:1497 Je 22 '16

What is vanadium steel? J. K. Smith, Iron Age 96:1472 D 23 '15

Vancouver, B. C.**Hotels**

Electrical features of a modern hotel, il Elec R & W Elec'n 68:280-2 F 12 '16

Water supply

Laying submerged water mains at Vancouver, il map Eng N 74:1258-9 D 30 '15

Wharves

Concrete and timber cribs accurately placed for Vancouver wharf, R. M. Fripp, il diags Eng Rec 74:111-12 JI 22 '16

Vanilla

Effect of curing on the aromatic constituents of vanilla beans, F. Rabak, il J Ind & Eng Chem 8:815-21 S '16

Vanilla extract, J. R. Dean and J. O. Schlotterbeck, J Ind & Eng Chem 8:607-14, 703-9 JI-Ag '16

Bibliography

Vanilla extract, J. R. Dean and J. O. Schlotterbeck, J Ind & Eng Chem 8:709 Ag '16

Vapor density

Victor Meyer—his life and work, B. Horowitz, J Fr Inst 182:383-6 S '16

Vapor pressure

Critical constants of normal butane, isobutane and propylene and their vapor pressures at temperatures between 0° C. and 120° C. F. M. Seibert and G. A. Burrell, diag Am Chem Soc J 37:263-91 D '15

Dissociation pressures of mercurous chloride, A. Smith and R. P. Calvert, Am Chem Soc J 38:801-7 Ap '16

Dissociation tensions of certain hydrated chlorides and the vapor pressures of their saturated solutions, I. H. Derby and V. Yngve, Am Chem Soc J 38:1439-51 Ag '16

Lowering of the vapor pressure of water produced by dissolved potassium chloride, B. F. Lovelace, J. C. W. Frazer and E. Miller, diags Am Chem Soc J 38:515-28 Mr '16

Vapor pressures of sulfur dioxide and nitrous oxide at temperatures below their normal boiling points, G. A. Burrell and I. W. Robertson, Am Chem Soc J 37:2691-4 D '15

Vaporization. See Evaporation**Vaporizers**

Oil engine vaporizer proportions, L. Illmer, diags Am Soc M E J 38:37-41 Ja '16; Discussion, 38:151-2 F '16

Portable kerosene vaporizer, H. E. Oplinger, diag Ry Mech Eng 90:43 Ja '16

Schneider oil vaporizer, diags Power 43:394 Mr 21 '16

Variable speed. See Speed variation**Varnish and varnishing**

Determination of oil and resin in varnish, E. W. Boughton, U S Bur Stand Tech Pa 65:1-32 '16

Determination of volatile thinner in oil varnish, E. W. Boughton, U S Bur Stand Tech Pa 76:1-6 '16

Electricity in the manufacture of paint and varnish, F. D. Burr, il Elec R & W Elec'n 68:550-1 Mr 25 '16

Errors in the determination of acid values of boiled oils and varnishes, E. E. Ware and R. E. Christman, J Ind & Eng Chem 8:996-7 N '16

Ester gums or artificial resin esters, C. Ellis and L. Rabinovitz, il diag J Ind & Eng Chem 8:406-10 My '16

Finishing furniture with the use of compressed air, il Sci Am 114:354 Ap 1 '16

Polymerization of Chinese wood oil, C. L. Schumann, J Ind & Eng Chem 8:11-14 Ja '16

Red varnish, Foundry 44:113 Mr '16

Varnish analysis and varnish control, M. Y. Seaton and G. B. Sawyer, J Ind & Eng Chem 8:490-3 Je '16

Varnish troubles, A. D. Hoagg, Sci Am S 81:352 My 27 '16

Vaults

Heavy vault floor framed into existing columns in basement of Equitable building. diags plan Eng Rec 73:771-2 Je 10 '16
Modern practice in the design of bank vaults. F: S. Holmes. plans Brickb 25:109-13, 143-5 My-Je '16

See also Safes

Vaults (sepulchral). See Tombs**Vector diagrams.** See Electric currents, Alternating**Vegetable oils.** See Oils and fats**Vegetable-paring machines**

Electrically operated vegetable-paring machines. il Elec W 67:1997 Ap 29 '16

Vegetable silk

Vegetable silk. C: R: Dodge. Textile World 51:91+ D 4 '15

Vegetable wool. See Kapok**Vegetables**

Science for the home; losses and other chemical changes in boiling vegetables. K. I. Williams. Sci Am S 81:362-3 Je 3 '16

See also Beets and beet sugar

Vegetarianism

Is vegetarianism based on sound science? M. H. Keith. Sci Am S 82:358-9 D 2 '16

Vehicle licenses

Reciprocity of cities regarding vehicle licenses. A. L. Bostwick. Munic Eng 51:136 O '16

Vehicles

See also Automobiles; Cars; Electric vehicles; Motor trucks; Trucks; Wagons

Velour

Successful methods of finishing wool velours. il Textile World 51:4633+ O 28 '16

Velours forge to front; details necessary for their production. Textile World 51:1077+ F 12 '16

Velox. See Photographic paper**Velvet**

New hand woven art velvets. Textile World 51:3029 J1 1 '16

Venesection. See Bloodletting**Venezuela****Antiquities**

New data on the archaeology of Venezuela. H. J. Spinden. Sci Am S 82:123 Ag 19 '16

Ventilating fans. See Fans, Mechanical**Ventilation**

Blower system ventilates railway blacksmith shop; Bessemer & Lake Erie shops. il Eng Rec 74:318 S 9 '16

Can we standardize the requirements of ventilation? J. J. Blackmore. Heat & Ven 13:40 F '16

Chart for figuring round and rectangular ventilating ducts. C: A. Fuller. Heat & Ven 13:18-20 Ag '16

Correct and incorrect methods of connecting branches to main ducts. diags Heat & Ven 13:59-60 F '16

Engineering for the householder; ventilation, window leakage, furnace efficiency, light absorption. diags Eng M 50:329-32 Mr '16

Heating and ventilating conditions in a large office building. C. E. A. Winslow and G. F. Maglott. Am Soc Heat & V E 21:260-71 '15; Same. Heat & Ven 12:26-31 F '15; Discussion. Am Soc Heat & V E 21:271-3 '15

Heating and ventilating Newark theater. il plans Metal Work 85:97-101 Ja 14 '16

Heating and ventilating of churches. H. L. Alt. diags Brickb 24:311-14 D '15

Heating and ventilating plant in Equitable building. W. H. Driscoll. diags Dom Eng 74:229-30 F 19 '16

Heating and ventilating systems in the Northwestern mutual life insurance building, Milwaukee, Wis. il plans Dom Eng 76:322-3 S 2 '16

Hollow columns and roof ducts to ventilate concrete building of Cluett, Peabody & co., Troy, N. Y. il diags Eng Rec 74:658-9 N 25 '16

Independent system of mechanical and gravity heating and ventilation designed for the new addition to the Harvard club, New York. diags plans Metal Work 86:37-41 J1 14 '16

Mechanical equipment in a New York school. F. G. McCann. il diags Metal Work 86:310-12, 400-3 S 8, 29 '16

Mill ventilation without mechanical apparatus. H. L. Van Zile. Textile World 51:4147; Discussion. 4108+ S 23 '16

Modern acid-dipping, electroplating and japanning plant. H. N. Trumbull. il Gen Elec R 18:1121-6 D '15; Abstract. Iron Age 97:661 Mr 16 '16

Modern air; facts relating to air and ventilation in relation to health. J: F. Norton. Sci Am S 82:10 J1 1 '16

New ideas in air conditioning. W. E. Watt. Heat & Ven 13:27-9 F '16

Ozone for ventilation. diag Met & Chem Eng 13:975-7 D 15 '15

Plumbing, heating and ventilating in the new Illinois state penitentiary being built at Lockport. diags Dom Eng 77:178 N 11 '16

Principle of Bernoulli and its relation to heating and ventilating of a building. S. R. Williams. diags Heat & Ven 13:13-15 F '16

Recent data on the recirculation of air. I. N. Evans. Heat & Ven 13:39-40 Mr '16

Ventilating a kitchen properly. Metal Work 86:626-7, 654-5 N 17-24 '16

Ventilating flues for a large building. diag Concrete 9:169 N '16

Ventilation engineering problems. Metal Work 84:806-7 D 24 '15

Ventilation in India. Engineer 122:102-3 Ag 4 '15

Ventilation of battery rooms. M. A. Walker. Power 44:723-4 N 21 '16

Ventilation of buildings in New York. Bldg Age 38:63 Ja '16

Ventilation of homes by Chicago commission on ventilation. Heat & Ven 13:41-2 F '16

Ventilation of industrial plants. C. T. Graham-Rogers and W: T. Doyle. Am Soc Heat & V E 21:301-4 '15; Same. Metal Work 83:283+ F 19 '15; Same. Dom Eng 71:4-5 Ap 3 '15; Discussion. Am Soc Heat & V E 21:304-6 '15

Ventilation of special rooms. C: L. Hubbard. diags Brickb 25:75-8 Mr '16

Ventilation requirements and test methods; with discussion. E. V. Hill. il W Soc E J 21:89-114 F '16

See also Air; Air conditions; Air pollution; Air washers; Dust removal; Factories—Heating and ventilation; Fans, Electric; Fans, Mechanical; Foundries—Ventilation; Heating; Humidity; Mine ventilation; Schoolhouses—Heating and ventilation; Ships—Ventilation; Subways—Ventilation; Theaters—Heating and ventilation; Tunnel ventilation; Ventilators

Cost

Survey of operating costs in thirteen school buildings. J: M. Cushman. Heat & Ven 13:25-34 N '16

Experiments

Experimental laboratory of the New York state commission on ventilation and a description of the first year's work. D. D. Kimball; G: T. Palmer. il diags plans Am Soc Heat & V E 21:135-207 '15; Excerpts. Heat & Ven 12:18-26 Mr '15; Abstract. Power 41:177 F 2 '15; Discussion. Am Soc Heat & V E 21:207-10 '15

Is washed recirculated air better than fresh air? Heat & Ven 13:41-2 O '16

Recent tests on recirculation of washed air. G. L. Larson. il Metal Work 84:675-7+ N 26 '15; Abstract. Am Soc M E J 37:723-4 D '15; Conclusions. Heat & Ven 13:36-7 F '16

Recirculating of air in a schoolroom in Minneapolis. F. Bass. Am Soc Heat & V E 21:109-16 '15; Same cond. Heat & Ven 12:27-30 Mr '15; Discussion. Am Soc Heat & V E 21:116-25 '15

Laws and regulations

Requirements for model compulsory heating and ventilation laws; promulgated by the American society of heating and ventilating engineers. Heat & Ven 13:32-7 Ap '16

- Ventilation**—Laws and regulations—*Continued*
 Ventilation of buildings in New York city. Metal Work 85:255 F 18 '16
- Ventilators**
 Arex ventilators. il Metal Work 85:78 Ja 7 '16
 Ball-bearing ventilator. il Metal Work 86:294 S 1 '16
 Bell tower and ventilator details; an example of English practice. diags Bldg Age 38:27-8 Mr '16
- Venturi meters**
 Abnormal coefficients of the venturi meter. Power 44:40 JI 4 '16
 Action of venturi meter with pulsating flow. L. A. Wilson. diag Power 44:425-6 S 19 '16
 Inaccuracy of meters on lively lines. J. M. Spitzglass. Power 44:495 O 3 '16
 Operating characteristics of the venturi meter. C. G. Richardson. diags Power 43:152-4 F 1 '16
 Proposed electrical methods of recording gas flow in channels and pipes based on the linear hot-wire anemometer. L. V. King. il diags J Fr Inst 182:191-204 Ag '16
 Twin-tube Venturi meter aids water waste detection. F. F. Longley. il Eng Rec 73:736-7 Je 3 '16
 Venturi meter developed for accurate measurement of irrigation water. A. A. Wood. il diag Eng Rec 73:411-13 Mr 25 '16
 Venturi meter succeeds in irrigation. il diag Eng N 75:1122-3 Je 15 '16
 Venturi meters inaccurate on lively lines. A. Hazen. Eng N 76:293 Ag 17 '16; Same cond. Power 44:354 S 5 '16
 Venturi meters on lively lines. J. W. Ledoux; W. Gore. Eng N 76:514-15 S 14 '16
- Venturi tube**
 Flow of air and steam through orifices. H. B. Reynolds. diag Am Soc M E J 38:953-8 D '16
- Venus fly trap**
 Venus fly trap at dinner. S. L. Bastin. il Sci Am 115:441 N 11 '16
- Vera Cruz, Mexico**
 Water supply
 Tropical water supplies, with special reference to the Canal Zone and to Vera Cruz. J. T. B. Bowles. il Am Water Works Assn J 3:490-2 Je '16
- Verdun, France**
 Miracle of motor transport; how Verdun, cut off from the railroads, was saved. J. Brinker. il Sci Am 115:38-9 JI 8 '16
- Vessels.** See Steamboats
- Veterinary hospitals.** See Hospitals, Veterinary
- Veterinary medicine**
 Electricity as a friend of animals. il Elec R & W Elec'n 68:502 Mr 18 '16
 See also Hospitals, Veterinary
- Viaducts.** See Bridges
- Vibration**
 Apparatus and methods used in measuring the vibrations in a building. P. E. Stevens. diags Eng & Contr 46:183-4 Ag 23 '16
 Effect of building vibration on output. il Textile World 51:4745+ N 4 '16
 Effect of vibration in factory buildings. Eng Rec 74:355-6 S 16 '16
 Effects of vibration on buildings. Iron Tr R 59:733 O 12 '16
 Graphic analysis of building vibrations. E. E. Hall. il Elec W 66:1356-8 D 18 '15
 Opinions on building vibration collected by contractors. Eng N 76:624-5 S 28 '16
 Pallograph; an ingenious instrument for recording vibrations. il diags Sci Am S 82:188 S 16 '16
 Steel frame of Printing Crafts building, New York, designed to prevent vibration. diags plan Eng Rec 73:46-7 Ja 8 '16
 Vibration in steam turbines. H. A. Fisher. Power 44:489-90 O 3 '16
 Vibration prevention. diags Eng M 51:595-8 JI '16
 See also Automobiles—Vibration; Light; Oscillations; Ships—Vibration
- Victoria, B. C.**
 Water supply
 Building a pipe-line of concrete. I. F. Springer. il Sci Am 115:371+ O 21 '16
 Design, construction and unit costs of Sooke lake water supply works, Victoria. B. C. C. H. Rust. il Eng & Contr 45:182-4 F 23 '16; Same cond. Eng N 74:996-7 N 18 '15
- Victoria memorial museum.** See Ottawa, Canada
 —Victoria memorial museum
- Vijao**
 New vegetable dye. Sci Am 115:219 S 2 '16
- Villa, Francisco**
 On the trail of Villa. il map Sci Am 114:326-7+ Mr 25 '16
- Virginia.** See Geology—Virginia; Mines and mineral resources—Virginia
- Viscosimeters**
 Measurement of viscosity and a new form of viscosimeter. H. C. Hayes and G. W. Lewis. diags Am Soc M E J 38:628-30 Ag '16; Same cond. Iron Tr R 59:836-7+ O 26 '16; Abstract. Iron Age 97:940 Ap 20 '16; Discussion. Am Soc M E J 38:630-2 Ag '16
 Notes on viscosimeters. R. F. MacMichael. Am Soc M E J 38:1003 D '16
 Sources of error in viscosity measurement. E. C. Bingham, H. I. Schlesinger and A. B. Coleman. Am Chem Soc J 38:27-41 Ja '16
- Viscosity**
 Influence of viscosity in pumping crude oil. A. L. Collins. Eng N 76:22-4 JI 6 '16
 Laws of plastic flow; abstracts. E. C. Bingham. J Fr Inst 181:845-8 Je '16; Sci Am S 82:79 JI 29 '16; Met & Chem Eng 15:263-4 S 1 '16
 Measurement of the absolute viscosity of very viscous media. S. E. Sheppard. J Fr Inst 182:697-8 N '16
 Measurement of viscosity. M. D. Hersey. Am Soc M E J 38:1002-3 D '16
 Measurement of viscosity and a new form of viscosimeter. H. C. Hayes and G. W. Lewis. diags Am Soc M E J 38:626-8 Ag '16; Same cond. Iron Tr R 59:836-7+ O 26 '16; Discussion. Am Soc M E J 38:630-2 Ag '16
 Measuring viscosity of very viscous substances, such as heavy oils, petroleum, asphalt, resins, etc. Met & Chem Eng 15:541 N 1 '16
 Method for measuring the viscosity of blast-furnace slag at high temperatures. A. L. Feild. il diags U S Bur Mines Tech Pa 157:1-27 '16
 Sources of error in viscosity measurement. E. C. Bingham, H. I. Schlesinger and A. B. Coleman. Am Chem Soc J 38:27-41 Ja '16
 Turbulent flow in pipes and channels; abstract. L. V. King. Am Soc M E J 38:506-7 Je '16
 Unit of viscosity measurement. P. C. McIlhenny. J Ind & Eng Chem 8:433-5 My '16
 Viscosities of solutions of caesium salts in mixed solvents. P. B. Davis and H. C. Jones. Am Chem Soc J 37:2636-42 D '15
 Viscosity and its relation to lubricating value. A. E. Flowers. Power 43:37-40 Ja 11 '16
 Viscosity in cylinder oils. C. E. Carpenter. Power 44:101-3 JI 18 '16; Discussion. 44:250-1, 463-4, 598-9, 630-2, 697 Ag 15, S 26, O 24, 31, N 14 '16
 Viscosity of a thermolized paraffin base oil. G. Egloff and R. J. Moore. Met & Chem Eng 15:192-3 Ag 15 '16
 Viscosity of certain alcoholic solutions. O. F. Tower. il Am Chem Soc J 38:833-44 Ap '16
 Viscosity of oils in relation to the rate of flow through pipes; abstract. R. T. Glazebrook, W. F. Higgins and J. R. Pannell. Am Soc M E J 38:593 JI '16
 See also Viscosimeters
- Viscous liquids.** See Liquids, Viscous
- Vises.** See Machine tools—Fixtures
- Vision.** See Eye; Sight
- Vital statistics**
 Effect of war upon national vitality. Sci Am 115:256 S 16 '16
 Our fragmentary vital statistics. C. L. Wilbur. Sci Am 115:384 O 28 '16
- Vitamines**
 New phase in the science of nutrition. Sci Am 115:452 N 18 '16
 Vitamines and lipoids in butter and margarine. J. De Ruiter. J Ind & Eng Chem 8:1020-1 N '16

Vitiatene

Researches on amines; the structure of vitiatene; synthesis of methylethylenediamine. T. B. Johnson and G. C. Bailey. *Am Chem Soc J* 38:2135-45 O '16

Vitrified block sewers. See Sewers, Vitrified block**Vitrolite**

New uses for vitrolite. *Textile World* 51: 2663-Je 3 '16

Vocational education

Federal aid for vocational education. H. E. Miles. *Am Ind* 16:20-1 Ap '16

Great need of our industries and citizenship. F. L. Glynn. *Am Soc M E J* 38:644 Ag '16

Smith-Hughes bill for federal aid for vocational education. *Am Ind* 16:30-1 Je '16

Training the schoolboy to enter a trade. W. H. Henderson. *Metal Work* 84:817-18 D 24 '15

Vocational education under state control. F. L. Glynn. *Am Ind* 16:23-5 My '16

Vocational training survey. *Iron Age* 97:1260 My 25 '16

See also Industrial education; Railroad education; Technical education; Trade schools

Vocational guidance

Selecting men for jobs. H. Schneider. *Eng M* 51:420-31 Je '16

Voice. See Speech; Stammering**Voile**

Making voile fabrics from single yarns. *il Textile World* 51:2657 Je 3 '16

Styles and designs in voile fabrics. *il Textile World* 51:2333 My 13 '16

Volatile oils. See Essential oils**Volcanoes**

Ancient volcanoes in South Africa. *diags Sci* Am S 82:246 O 14 '16

Tragedy of Tarawera. M. Proctor. *il Sci Am* S 80:392-3 D 18 '15

Voltage reducers

Neon-helium tubes as rectifiers and voltage reducers. F. Schroeter. *diags Elec W* 67:441-2 F 19 '16

Taking direct current for telephone and signal circuits from commercial lighting networks; abstract. F. Schroeter. *diags Elec W* 67:330-1 F 5 '16

Voltage regulation

Automatic tap-changers for voltage regulation. *diag Elec Ry J* 48:732 O 7 '16

Characteristics of a series lighting system. R. E. Uptegraff. *Elec W* 68:79-80 JI 8 '16

Effects of power factor on voltage regulation. F. A. Annett. *diags Power* 44:85-7 JI 18 '16

Electrification of isolated factories. *plans Engineer* 121:172-4 F 25 '16

How improved voltage regulation may show profits. S. G. Hunter. *Elec W* 66:1373-4 D 18 '15

How placing regulator between delivery end of line and station improved voltage conditions. *Elec W* 67:825-6 Ap 8 '16

Improved design of induction feeder-voltage regulator. *il Elec R & W Elec'n* 69:566 S 23 '16

Incandescent street lighting regulating apparatus. H. H. Reeves. *il diag Gen Elec R* 19:798-804 S '16

Induction feeder voltage regulator. *il Elec W* 68:490-1 S 2 '16

Induction voltage regulators. *il diags Power* 44:754-7 N 28 '16

Influence of generator speed on compounding and commutation. G. Fox. *Elec R & W Elec'n* 68:1037-8 Je 3 '16

Installation of a special pole-top regulator. *il diag Elec W* 67:1101-2 My 13 '16

Voltage regulation for electric lighting systems. G. P. Roux. *il diags Gen Elec R* 19: 619-25 JI '16

See also Power factor

Voltaic arc. See Electric arc**Voltaic cell.** See Electric batteries**Voltmeters**

Accuracy of copper voltameters. A. K. Datta and N. Dhar. *Am Chem Soc J* 38:1156-60 Je '16

Inclusions in the silver voltameter. T. W. Richards and F. O. Anderegg. *Am Chem Soc J* 38:2044-6 O '16

Inclusions in the silver voltameter deposits. G. W. Vinal and W. M. Bovard. *Am Chem Soc J* 38:496-515 Mr '16

Silver voltameter. *Elec R & W Elec'n* 69:607 S 30 '16

Voltmeters

A. I. E. E. symposium on high voltage measurements. *diags Elec W* 67:358-9 F 12 '16

Construction of an electrostatic voltmeter. E. R. Wolcott. *diags Elec W* 67:1113-14 My 13 '16

Corona as a standard for measuring high voltage. J. B. Whitehead. *il Elec W* 67:1405-9 Je 17 '16

Corona voltmeter. J. B. Whitehead and M. W. Pullen. *il diag Am Inst E E Pro* 35:791-815 Je '16; Discussion. 35:1611-20 N '16

Crest voltmeter. L. W. Chubb. *il diags Am Inst E E Pro* 35:121-8 F '16; Discussion. 35: 1063-82 JI '16

Crest voltmeters. C. H. Sharp and E. D. Doyle. *diags Am Inst E E Pro* 35:129-37 F '16; Discussion. 35:1063-82 JI '16

Exciter voltmeter varied. E. C. Parham. *diag Power* 43:744 My 23 '16

Measurement of high voltage. W. R. Work. *il Am Inst E E Pro* 35:203-10 F '16; Discussion. 35:1063-82 JI '16

New form of high voltage measuring instrument. J. B. Whitehead. *il Sci Am* 115:167 Ag 19 '16

Temperature coefficients of voltmeter; abstract. J. Rennie. *Elec W* 68:1064 N 25 '16

Voltmeter coil in testing transformers. A. B. Hendricks, jr. *Am Inst E E Pro* 35:138 F '16; Discussion. 35:1063-82 JI '16

See also Sphere gap

Volumetric analysis

Accurate end-point in the volumetric determination of sulfur in steel. H. Zschiegner. *J Ind & Eng Chem* 8:324 Ap '16

Analysis of maple products. J. F. Snell. *J Ind & Eng Chem* 8:144-8 F '16

Chlorides in presence of thiocyanates. F. W. Bruckmiller. *Am Chem Soc J* 38:1953-5 O '16

Color standards and colorimetric assays. H. V. Army and C. H. Ring. *J Ind & Eng Chem* 8:309-17 Ap '16

Colorimetric method for the determination of copper and iron in pig lead, lead oxides, and lead carbonate. B. S. White. *J Ind & Eng Chem* 7:1035-6 D '15

Determination of carbonic acid, combined and free, in solution, particularly in natural waters. J. Johnston. *Am Chem Soc J* 38:947-75 My '16

Determination of chromium and vanadium in steel by electrometric titration. G. L. Kelley and J. B. Conant. *J Ind & Eng Chem* 8:719-23 Ag '16

Electrometric titration of vanadium. G. L. Kelley and J. B. Conant. *diag Am Chem Soc J* 38:341-51 F '16

Methods for the determination of carbon dioxide and a new form of absorption tower adapted to the titrimetric method. E. Truog. *diag J Ind & Eng Chem* 7:1045-9 D '15

Methods of rapid analysis. L. B. Pringle. *Eng & Min J* 101:650 Ap 8 '16

New methods for the analysis of lime-sulfur solutions. R. M. Chapin. *J Ind & Eng Chem* 8:151-6, 339-41 F, Ap '16

Rapid method for the estimation of copper and iron. G. Edgar. *Am Chem Soc J* 38:884-7 Ap '16

Rapid volumetric determination of indigo. S. M. Jones and W. Spaans. *diags J Ind & Eng Chem* 8:1001-2 N '16

Rapid volumetric procedures for determining combined alumina and basic alumina or free acid in aluminum salts. W. W. Scott. *J Ind & Eng Chem* 7:1059-61 D '15

Titrametric determination of nitrites. B. S. Davison. *diag Am Chem Soc J* 38:1683-7 S '16

Use of diphenyl glyoxime as an indicator in the volumetric determination of nickel by Frevert's method. G. L. Kelley and J. B. Conant. *J Ind & Eng Chem* 8:804-7 S '16

Volumetric analysis—Continued

Volumetric determination of cerium by means of potassium permanganate. V. Lenher and C. C. Meloche. *Am Chem Soc J* 38:66-70 Ja '16

Volumetric determination of tin by potassium iodate. G. S. Jamieson. *J Ind & Eng Chem* 8:500-2 Je '16

Volumetric method for the determination of cobalt. W. D. Engle and R. G. Gustavson. *J Ind & Eng Chem* 8:901-2 O '16

Volumetric apparatus

Diagram for the calibration of volumetric apparatus and the reduction of the volumes of liquids to a standard temperature of 20° C. H. G. Deming. *J Ind & Eng Chem* 8:451-3 My '16

Testing of glass volumetric apparatus. *diags U S Bur Stand Circ* 9:1-32 '16

Volunteer patrol squadron

Motorboats of the volunteer patrol squadron. *il Sci Am* 114:15 Ja 1 '16

Volutes. See Scrolls (decorative design)**Voorhees, Theodore, 1847-1916**

Sketch. *por Ry Age* 60:475 Mr 17 '16

Vreeland oscillator

Studies in the measurement of the electrical conductivity of solutions at different frequencies; investigations on the use of the Vreeland oscillator and other sources of current for conductivity measurements. W. A. Taylor and S. F. Acree. *il Am Chem Soc J* 38:2396-403 N '16

Vulcanized fiber

Rubberizing process. *Textile World* 51:4369 O 7 '16

Vulcanized fibre. C. Almy, jr. *il Met & Chem Eng* 13:746-7 O 15 '15; Same. *Sci Am S* 80: 414 D 25 '15

Vulcanizers

Premier automatic electric vulcanizer for repairing automobile tires and household rubber articles. *il Elec R & W Elec'n* 69:692 O 14 '16

Vulcanizers. *il Horseless Age* 37:216-18 Mr 15 '16

W

Wages

After the war; what of the new munitions plants, the machine tool export trade and wages?; symposium. *Iron Age* 97:87-90 Ja 6 '16

Arizona wage scales. *Eng & Min J* 101:24 Ja 1 '16

Building trades wages for 1916. *Bldg Age* 38: 74 My '16

Buttering wages. P. Ten Broeck. *Met & Chem Eng* 15:58-9 Jl 15 '16

Cotton-spinning machinery industry. *U S Bur For & Dom Com misc ser* 37:60-9 '16

Demand for the increase of large wages at the expense of small wages. *Ry Age* 60:279-80 F 18 '16

Fixing individual wage rates on facts. G. D. Babcock. *Iron Age* 97:1375-9 Je 8 '16

How scientific management works; how to pay for work. C. B. Thompson. *Factory* 16:348-51 Ap '16

Increases in wages in New York. *Elec Ry J* 47:53 Ja 1 '16

Men's factory-made clothing industry. *U S Bur For & Dom Com misc ser* 34:192-218 '16

"Punitive" overtime not warranted in railroad service. *Ry R* 58:482-3 Ap 1 '16

Shirt and collar industries; report on the cost of production in the United States. *U S Bur For & Dom Com misc ser* 36:144-59 '16

When wage rates took a jump in eight industries; chart. *Factory* 17:248 S '16

Work, the worker and his wages. F. B. Gilbreth and L. M. Gilbreth. *Iron Age* 97:602-4 Mr 9 '16

See also Bonus system; Minimum wage; Piece work; Profit sharing; Time study

Wagons

Eight wagon bodies in one. *il Sci Am* 114:668 Je 24 '16

Walking

Energy transformations during horizontal walking. F. G. Benedict and H. Murschhauser. *Sci Am S* 81:400 Je 17 '16

Wall board

Details for applying wall board. J. A. Poehl. *diags Bldg Age* 38:39-41 Mr '16

Details of decorating wall board. J. A. Poehl. *il Bldg Age* 38:51-3 Je '16

Details of wall board paneling. J. A. Poehl. *il Bldg Age* 38:62-4 F '16

How to estimate wall board work. J. A. Poehl. *diags Bldg Age* 38:34-6 My '16

Use of wall board in the bungalow. J. A. Poehl. *il Bldg Age* 38:42-5 Ag '16

Wall board for the summer cottage. *diags Bldg Age* 38:60-1 Jl '16

Wall board—the interior finishing material. J. A. Poehl. *il Bldg Age* 38:57-8 Ja '16

Woodwork in wall board interiors. J. A. Poehl. *diags Bldg Age* 38:45-7 S '16

Wall footings

Bond and shear in reinforced footing offsets. C. Older. *diag Eng N* 76:18-19 Jl 6 '16

Wallaroo and Moonta mining and smelting company

Abstract of report for first half of 1916. *Eng & Min J* 102:877-8 N 11 '16

Walls

Furring walls and plastering direct in concrete house construction. *Concrete Cem* 8: 36-7 Ja '16

See also Building; Dams; Foundations; Retaining walls; Sea walls; Wall board; Wall footings

Walls, Concrete

Building-foundation specialists use sectional forms. *il diag Eng Rec* 74:182 Ag 5 '16

Large river wall of unusual design at Cedar Rapids. *il diags Eng N* 75:588-90 Mr 30 '16

Reconstruction of a reservoir at St. Louis, Missouri. *il diags Eng N* 74:1206-9 D 23 '15

Rock Island finds concrete cribbing effective. *il Eng Rec* 74:357 S 16 '16

Special methods in building concrete footing walls. *il Eng N* 76:362-3 Ag 24 '16

System of home-made wall forms as worked out by two builders. *il diags Concrete* 8:127-8 Mr '16

See also Concrete construction; Dams, Concrete; Retaining walls, Concrete

Walschaert gear. See Locomotives—Valves and valve gear**Waltham, Massachusetts****Architecture**

Public library at Waltham, and the Carter memorial hospital at Lancaster, Mass. M. Mower. *il diags plans Arch Rec* 39:320-37 Ap '16

War

Effect of war upon national vitality. *Sci Am* 115:256 S 16 '16

See also Aeronautics, Military; Armies; Automobiles in war; Electricity in war; European war, 1914-; Horses in war; Medicine, Military; Military art and science; Naval art and science; Railroads in war; Transportation, Military; War games; Wireless telegraph in war

Relief of sick and wounded

Sanitary service in war. *il Sci Am* 115:126+ Ag 5 '16

See also European war—Medical and sanitary affairs; European war—Relief work; Surgery, Military

War, Cost of

What is the economic loss by the war? *Eng & Min J* 101:328 F 12 '16

War, Maritime

Law of search and seizure on the high seas. *Sci Am* 115:384 O 28 '16

See also Submarine warfare

War cripples. See Cripples**War games**

Scientific American war game in miniature. H. S. Gladwin. *il Sci Am* 114:622 Je 10 '16

War games—Continued

War game. G. von Horvath. maps Sci Am 114: 278+, 328-9, 352-3+, 384+, 405+, 428+, 453+, 476+, 509+, 532+, 556-7, 587+ Mr 11, 25-Je 3 '16

War materials. See Munitions of war

War newspapers

Newspapers that are printed within gun range of the enemy. J. Boyer. il Sci Am 114:665+ Je 24 '16

War orders. See Munitions of war

War ships. See Warships

War supplies. See Munitions of war

War telephones. See Military telephone

Warehouse warrants

Warrants in an eventful period. C. J. Stark. Iron Tr R 59:167-71 Jl 27 '16

Warehouses

Chinese build reinforced-concrete warehouses. E. Park. il Eng Rec 74:557 N 4 '16

Concrete cotton terminals and warehouses at Atlanta. diags plan Eng N 74:1190-1 D 16 '15

Convention party inspects Atlanta's new cotton compress. Textile World 51:1738+ Ap 8 '16

Larkin warehouse, Philadelphia, Pa. il plan Arch & Bldg 47:406-7 N '15

New Bedford warehousing facilities. il Textile World 51:735 Ja 15 '16

Operation of warehouse heating plant of Merck & company, Rahway, N. J. J. F. Cyphers. Heat & Ven 13:35 F '16

Reid, Murdock & company warehouse, Chicago; views and plans. Brickb 25:247, pl 141 S '16

Warehouse of the C. A. Gambrell manufacturing company, Baltimore, Md.; view and plan Brickb 25:pl 151 S '16

Warehouse of the W. Bingham company, Cleveland, Ohio; view and plan. Brickb 25:pl 145 S '16

Warehouse to raise freight within and with out at Los Angeles. Eng Rec 73:318 Mr 4 '16

See also Freight houses; Grain elevators

Warm air furnaces. See Furnaces, Hot air

Warping machines

Measuring device for warping machine. il Textile World 51:345 Ja 1 '16

Warren mining district

Geology of the Warren mining district. Y. S. Bonillas, J. B. Tenney and L. Feuchère, il diags map Am Inst Min E Bul 117:1397-1465 S '16; Discussion. 120:2164-8 D '16

Warships.

Another naval invention! electromagnets for protection of warships. Sci Am 114:192 F 19 '16

Battle-cruiser vs. battleship. W. F. Johnston. Sci Am 115:321 O 7 '16

Battle cruisers for the line of battle. Sci Am 114:276 Mr 11 '16

Beam and draught of warships. Engineer 121: 402 My 12 '16

Big gun in the big ship. Sci Am 115:452 N 18 '16

Capital ship of the future. Engineer 122:319-20 O 13 '16

Hull protection against the torpedo. W. F. Cooper. Sci Am 115:437 N 11 '16

Lessons of the battle of Skagerrack. G. Dewey. Sci Am 115:9 Jl 1 '16

Light cruisers in the war. Engineer 122:209-10 S 8 '16

Questions of warship design. W. R. Sheete. Sci Am 115:409 N 4 '16

Submarine or battleship—which? il Sci Am 113:540+ D 18 '15

Vindication of the battle-cruiser. M. K. Barnett. il Sci Am 115:315+ O 7 '16

Warship design and the present war. Engineer 121:100 F 4 '16

See also Armor plate; Naval art and science; Naval guns; Submarine boats; Torpedo boat destroyers

Germany

German battleship Grosser Kurfürst. Engineer 121:391 My 12 '16

United States

Forerunner of the all-big-gun fighting ship; the dreadnought of the civil war. R. G. Skerrett. il diags Sci Am 115:174 Ag 19 '16

Our latest dreadnought, the Arizona. il Sci Am 115:471+ N 25 '16

Our latest dreadnought, the New Mexico. il Sci Am 115:333+ O 28 '16

Our latest superdreadnoughts. il Sci Am 114: 191 F 19 '16

Our superb battle cruisers. Sci Am 115:94 Jl 29 '16

Question of warship design. Sci Am 115:389 O 28 '16

Steel castings for American battleships and merchantmen. E. F. Cone. il Iron Age 97:652-8 Mr 16 '16; Excerpts. Int Marine Eng 21: 336-8 Jl '16

United States battleship Nevada. il plan Int Marine Eng 21:155-9 Mr '16

See also United States—Navy

Washed metal. H. D. Hibbard. il plan Am Inst Min E Bul 108:2387-94 D '15; Same. Iron Age 97:481-5 F 24 '16; Same. Iron Tr R 59:275-7 Ag 10 '16

Washers. See Air washers; Gravel washers

Washers (machinery)

Machining a thin brass washer. diags Mach 22:959 Jl '16

Washing machines

Modern steam laundry machinery. il diags Engineer 122:340-1 O 20 '16

Washing machines, Electric

All-metal electric washer. il Elec W 67:337 F 5 '16

Almetal electric washing machine. il Elec R & W Elec'n 67:1166 D 25 '15; Elec W 67:226 Ja 22 '16

Crystal dish-washing and clothes-washing machines. il Elec R & W Elec'n 68:520 Mr 18 '16

Crystal electric washing machine. il Elec W 67:673 Mr 18 '16

Electric-driven vacuum-type washer. il Elec W 67:336 F 5 '16

Electric washer for use in stationary tubs. il Elec R & W Elec'n 69:38 Jl 1 '16

Electric washer of vacuum type. il Elec W 67:58-9 Ja 1 '16

Haag twin washing machine. il Elec R & W Elec'n 68:303-4 F 12 '16

Klean kwik electric washing machine. il Elec R & W Elec'n 67:1166-7 D 25 '15; Elec W 67:225 Ja 22 '16

Modern laundry machine company electric washer. il Elec R & W Elec'n 68:390 F 26 '16

Self-contained electric washing and drying machine. il Elec R & W Elec'n 68:213 Ja 29 '16; Elec W 67:282 Ja 29 '16

Washing machine without interior tub parts. il Elec W 68:288-9 Ag 5 '16

Western electric co.'s electric washing machines. il Elec W 68:336-7 Ag 12 '16

Washing of sand. See Sand washing

Washington, D. C.

Power plant for government buildings. map Eng N 75:425-8 Mr 2 '16

See also Lincoln memorial

Architecture

Disfigurement of the national capital by a central power-house. il Am Inst Arch J 4: 106-13 Mr '16

Our stupid and blundering national policy of providing public buildings. C. H. Whitaker. il plan Am Inst Arch J 4:44-58 F '16

See also United States—Capitol; White House

Bridges

Q street bridge at Washington. il diags Eng N 75:1-3 Ja 6 '16

Replacing water-main bridge with concrete arch. il diags Eng N 74:1153-4 D 16 '15

Libraries

Libraries of Washington. Sci Am 114:120 Ja 29 '16

Parks

Noted zoological parks. R. W. Shufeldt. il Sci Am S 81:216-18 Ap 1 '16

Washington, D. C.—Parks—Continued

Washington's new parks. W: W. Harts. map
Am Inst Arch J 4:468-70 N '16

Streets

Washington systematizes subsurface mapping.
A. E. Phillips. map Eng Rec 74:262-3 Ag 26 '16

Waste

Centrifugal pumps dispose of quarry waste.
diag Eng N 76:508 S 14 '16

Let the workmen know the cost. Elec Ry J
48:321-2 Ag 19 '16

Preparedness for peace in the mineral industries; what is being done to eliminate waste. S. B. Stone. il Sci Am 114:350-1+ Ap 1 '16

Saving the wiping waste. Factory 16:610+ Je '16

Savings which are worth considering. Textile World 51:1143 F 19 '16

Underground wastes in oil and gas fields and methods of prevention. W: F. McMurray and J. O. Lewis. il U S Bur Mines Tech Pa 130: 1-27 '16

Warring on waste. il Factory 17:13-17, 129-32, 252-5, 392-5, 538-41, 657-9 JI-D '16

See also Trade waste; Waste heat; Waste products; Water waste

Waste, Disposal of. See Refuse and refuse disposal; Sewage disposal

Waste fuel

See also Fuel economy

Waste heat

Design of bituminous mining plants. W: A. Weldin. il diags Eng Soc W Pa 31:678-82 N '15

Electric power distribution in England; abstract. C: H. Merz. Elec W 68:869 O 28 '16

Electricity in by-product coke manufacture. il Elec R & W Elec'n 68:583-5 Ap 1 '16

Ford gas-steam plant, Detroit. T: Wilson. il Power 44:706-10 N 21 '16

Gas engine drive in large machine shop. F. L. Prentiss. Iron Age 98:390 Ag 24 '16; Same. Am Gas Light J 105:148 S 4 '16; Abstract. Am Soc M E J 38:833 O '16

Heater for automobiles. diags Heat & Ven 12: 52 D '15

How to utilize waste heat boilers. C. J. Bacon. diags Iron Tr R 57:1225-30 D 23 '15

Powdered coal in the open-hearth furnace. C. J. Gadd. diags Iron Age 97:890-5 Ap 13 '16

Smelting at Arizona copper co.'s works. F. N. Flynn. Am Inst Min E Bul 117:1575-92 S '16; Excerpts. Eng & Min J 102:638 O 7 '16

Utilization of exhaust heat from internal combustion engines; abstract. W. Gentsch. diags Am Soc M E J 38:180-1 F '16

Utilization of waste heat for steam-generating purposes. A. D. Pratt. diag Am Soc M E J 38:859-61 N '16

Utilizing digester waste heat. F. B. Hays. diag Power 43:372 Mr 14 '16

Utilizing powdered coal at Lebanon, Pa. diags Iron Age 97:1317-19 Je 1 '16

Value of preheating boiler-furnace air supply. R. I. Elkin. Elec W 67:771 Ap 1 '16

Water heating by gas engine exhaust. diag Am Gas Light J 103:365 D 6 '15

See also Coke ovens; Exhaust steam

Waste metal. See Metal waste; Scrap metal

Waste paper

Save waste papers and rags. Am Ind 16:35-6 Ap '16

Saving of waste paper material. U S Bur For & Dom Com 8p '16

Stationery scrap and reclamation on the Pennsylvania lines east. il Ry R 58:666-7 My 13 '16

See also Paper as fuel

Waste products

Gas producers with by-product recovery. A. H. Lyman. il diags Am Soc M E J 37:253-66 My '15; Same. Iron Tr R 57:1123-30+ D 9 '15

Lime recovery from spent causticizing mud. J. H. Payne. diag J Ind & Eng Chem 7:1056-9 D '15

Phases of the citrus by-product industry in California. R. T. Will. flow sheet J Ind & Eng Chem 8:78-86 Ja '16

Proposed method for the profitable utilization of waste sulfite liquor. H. V. Tartar. J Ind & Eng Chem 8:226-8 Mr '16

Reclaiming of rubber waste. A. H. King. Met & Chem Eng 14:309-11 Mr 15 '16

Recovery of ammonia from waste liquors. E. L. Knoedler. il diag J Ind & Eng Chem 7:1061-4 D '15; Same. Am Gas Light J 104:70 Ja 31 '16

Sale of waste material. Munic J 41:261-2 Ag 31 '16

Technology of marble quarrying. O. Bowles. U S Bur Mines Bul 106:119-22 '16

See also Blast furnace gas; Coke manufacture—By-products; Coke-oven gas; Cotton waste; Fruit waste; Gas manufacture and works; Metal waste; Refuse, Utilization of; Refuse and refuse disposal; Scrap metal; Sewage sludge; Silk waste; Slag; Tar; Trade waste; Waste paper; Wood ashes; Wood distillation; Wood waste; Wool waste; Yeast

Waste puller

American-built waste puller. diag Textile World 51:895 Ja 29 '16

Waste wood. See Wood waste

Watch inspection

Watch inspection systems. Elec Ry J 47:306-8 F 12 '16

Watches

Combined revolution counter and watch. il Engineer 122:425 N 10 '16

Experiments with watches. Sci Am S 81:195 Mr 25 '16

Origin of the watch. G: F. Eberhard. Metal Ind n s 14:113 Mr '16

Photographic effect of luminous watches. Sci Am S 82:43 JI 15 '16

Silberberg master chronograph. il Automobile 34:329 F 17 '16; Elec R & W Elec'n 68:478-9 Mr 11 '16; Elec W 67:393-4 F 12 '16; Iron Age 97:294 F 3 '16; Iron Tr R 58:296 F 3 '16

Watch face as protractor. G: H. Fellows. il Eng & Min J 101:395 F 26 '16

Watch which performs a score of functions. il Sci Am 114:666+ Je 24 '16

Repair

Repairing a watch balance staff. G. H. Gardner. diags Mach 22:972 JI '16

Watchmen

Will your watchman stand the test? Factory 17:410-11 O '16

Water

Cost of hardness in water. Munic J 41:381-2 S 28 '16

Effect of algae on bicarbonates in shallow reservoirs. S. T. Powell. Am Water Works Assn J 2:703-8 D '15

Effect of dissolved substances on the velocity of crystallization of water. J. H. Walton and A. Brann. Am Chem Soc J 38:317-30, 1161-6 F. Je '16

Specific conductivity of pure water in equilibrium with atmospheric carbon dioxide. J. Kendall. Am Chem Soc J 38:1480-97 Ag '16

See also Cooling water; Erosion; Feed water; Floods; Fog; Hydraulics; Hydrostatics; Ice; Mine water; Rain; Rivers; Sea water; Snow; Steam; Water supply; Waterways

Analysis

Comparison of the permanganate methods for the determination of required oxygen. J: H. Sachs. J Ind & Eng Chem 8:404-6 My '16

Determination of carbonic acid, combined and free, in solution, particularly in natural waters. J: Johnston. Am Chem Soc J 38:947-75 My '16

Local water tested by laboratory on wheels. J. H. O'Neill. il Eng Rec 74:319 S 9 '16

Method of detecting various mineral and alkaloid poisons in water. Sci Am S 81:5 Ja 1 '16

Rate of ammonia distillation from water. F. W. Bruckmiller. J Ind & Eng Chem 8: 602-3 JI '16

Study of indicators for the determination of temporary hardness in water. J: F. Norton and H. I. Knowles. Am Chem Soc J 38:877-84 Ap '16

Water—Analysis—Continued

True object of water analysis. F. L. Rector. Am Water Works Assn J 2:709-11 D '15

See also Water—Bacteriology; Water sampling

Bacteriology

Aspects of chlorination. J. Race. Am Water Works Assn J 3:439-49 Je '16; Abstract. Eng Rec 73:805 Je 17 '16

Bacteria in commercial bottled waters. M. M. Obst. U S Bur Agric Bul 369:1-13 '16

Considerations in estimating the sanitary quality of water supplies. W. H. Frost. Am Water Works Assn J 2:712-22; Discussion. 723-34 D '15

Iron-bacteria; a curious class of organisms, their physiology, and their action on iron solutions. D. Ellis. Il Sci Am S 82:124-6, 140-1 Ag 19-26 '16

Law

See Water laws

Water, Distilled

Preparation of conductivity water. J. Kendall. Am Chem Soc J 38:2460-6 N '16

Water, Mine. See Mine water

Water, Purification of. See Water purification

Water, Underground

Legislation needed to control use of ground water. C. H. Lee. Eng Rec 72:786 D 25 '15

Santa Barbara has subterranean storage reservoir. Eng Rec 73:115 Ja 22 '16

Underground-water dispute in California cities. K. Q. Volk. Eng N 75:12 Ja 6 '16

See also Divining rod; Mine water; Wells

Water analysis. See Water—Analysis

Water closets

Chemical closets for rural communities. Il Metal Work 85:71-2 Ja 7 '16

Connection of local vent. diags Metal Work 85:892 Je 30 '16

Different types of flush valves. J. Graham. diags Dom Eng 75:130-2 Ap 29 '16

Flushing closets. Metal Work 85:196-7, 288 F 4, 25 '16

Jack Frost closets. Il Metal Work 85:78 Ja 7 '16

Repairing ball cocks and closet tanks. diags Metal Work 86:209-10 Ag 18 '16

Repairing of water closet flush valves. diags Metal Work 85:539-40, 612-13 Ap 21, My 5 '16

See also Schoolhouses—Toilet rooms; Toilet rooms; Urinals

Water companies

Profit in water-works forestry at Nashua. N. H. Il map Eng N 76:472-4 S 7 '16

See also Water meters

Public relations

Diplomacy in collecting water bills at Terre Haute, Ind. D. R. Gwinn. Eng & Contr 44:444-6 D 8 '15

Service pipes

Expense of service pipes; court decisions. Gas Age 38:94 Jl 15 '16

Water conduits

Fall River concrete conduits—special reference to a three-level conduit of unique design. F. H. Fay. diags Eng & Contr 45:238-41 Mr 8 '16

Improvement of Quequechan river in Fall River, Mass. plan Munic Eng 49:218-19 D '15

Lining a steel conduit with cement gun Baltimore water works. P. A. Beatty. Eng & Contr 46:237-8 S 13 '16

Maintaining a large riveted steel conduit at Portland, Ore. Eng & Contr 45:367-3 Ap 19 '16

Million-dollar project, just started, will remove flood menace at Erie, Pa. F. Gannett. Eng Rec 74:236-7 Ag 19 '16

\$600,000 Washington irrigation project, financed by landowners, completed in a year. J. C. Stevens. Il diags map Eng Rec 74:640-3 N 25 '16

Three-level concrete conduit design outlined. F. H. Fay. Eng Rec 73:282 F 26 '16

See also Aqueducts; Flumes; Siphons; Water pipes; Water supply engineering

Water consumption

Meters and consumption. Munic J 40:764-5 Je 1 '16

Per capita consumption of water in the public schools of Hartford, Conn. C. M. Saville. Eng & Contr 45:96 Ja 26 '16

Report of committee of American water works association on water consumption. Am Water Works Assn J 3:687-90 S '16

Warning the public against overdrawing a reservoir. A. E. Blackmer. Eng N 74:1163 D 16 '15

Water consumption in Metropolitan water district, Boston, Mass. Eng & Contr 46:417 N 8 '16

Water consumption lowest where most of it is metered. Eng Rec 73:43 Ja 8 '16

Water saved in 100-per cent metered city; Oak Park, Ill. Eng Rec 73:738-9 Je 3 '16

See also Water meters; Water waste

Water coolers

Novel cooler for internal combustion engines. Il Sci Am S 82:165 S 9 '16

Water coolers an aid to summer business. diags Metal Work 86:35-6 Jl 14 '16; Excerpt (Cooled drinking water for shops). Iron Age 98:187 Jl 27 '16

Water coolers for passenger cars. G. E. McCoy. diag Ry Mech Eng 90:460 S '16

Water cooling. See Cooling towers

Water cranes

Dawson balanced-valve water crane. diag Ry R 58:26 Ja 1 '16

Water distillation. See Distillation

Water flow

Bazin vs. Ganguillet and Kutter. A. G. Hillberg. Eng Rec 74:494-5 O 21 '16

Better Kutter's formula coefficients. R. E. Horton. Eng N 75:373-4 F 24 '16; Same cond. Eng & Min J 161:675 Ap 15 '16

Capacity of twin pipe line. F. H. Kingsbury. Eng N 75:1239 Je 29 '16

Chart for determining flow of water through pipes and friction loss. Elec W 68:912 N 4 '16

Coefficients of retardation in Kutter's formula. F. C. Scobey; R. E. Horton. Il Eng N 75:862-3 My 4 '16

Condition and carrying capacity of old cast iron water pipe at Hartford, Conn. C. M. Saville. Eng & Contr 45:282-3 Mr 22 '16

Curves for irrigation-ditch velocity and discharge. J. Hinds. Eng N 76:369-70 Ag 24 '16

Curves for irrigation-ditch velocity and discharge. L. R. Douglass. Eng N 76:72-3 Jl 13 '16

Cycloidal curve expressing the law of distribution of velocities in flow of water in pipes; abstract. M. Moignie. Am Soc M E J 38:755 S '16

Determination of roughness coefficient for Kutter's formula for dredged ditches in Bolivar county, Mississippi. C. E. Ramser. Il Eng & Contr 46:229-31 S 13 '16

Diagram giving excess loss of head in 90° bends. F. S. Bailey. Eng N 75:412-13 Mr 2 '16

Experiments on water flow through pipe orifices. H. Judd. Il diag Am Soc M E J 38:709-19 S '16; Abstract. Power 43:672-3 My 9 '16; Discussion. Am Soc M E J 38:720 S '16

Experiments with submerged orifices and tubes. T. C. Rogers and T. L. Smith. diags Eng N 76:825-7 N 2 '16

Flow of water in pipe line. diag Coal Age 8:773, 945 N 6, D 4 '15

Flow of water in pipes. table Power 44:468 S 26 '16

Friction loss through check valve and condenser. Il diag Power 43:178-9 F 8 '16

Graphical solution of the problem of storm flow through a reservoir. A. S. Fry. Eng & Contr 45:370-2 Ap 19 '16

Irrigation module devised for constant flow. J. Barieau. diag Eng N 75:806-7 Ap 27 '16

Lost-head diagrams for bends in water pipe. B. Morell. diags Eng N 75:302-4 F 17 '16

New knowledge on standard reservoir mouth-piece. W. S. Pardoe. Il Eng N 76:520-1 S 14 '16

New method of deriving weir formulas. T. R. Running. diag Eng N 76:695-6 O 12 '16

9-foot masonry conduit tested for carrying capacity. Eng Rec 74:450 O 7 '16

Water flow—Continued

- Old brick intake tunnel shows low Kutter factor. D. H. Maury and R. E. Horton. *il Eng N 76:160-1 S 7 '16*
- Practical methods of measuring flowing water. C. O. Wisler. *bibliog Eng & Contr 45:536-9 Je 14 '16*
- Saline method of water flow measurement as used in the acceptance test of a pumping plant. W. D. Peaslee. *diags Gen Elec R 19:132-8 F '16*
- Surface friction; experiments with steam and water in pipes; abstract. C. H. Lander. *Am Soc M E J 38:505-6 Je '16*
- Tests of loss of head in strainers, orifices and sand. L. Pearse. *diags Am Water Works Assn J 3:504-13 Je '16*; Same cond. *Eng Rec 73:385-6 Mr 18 '16*
- Twin-pipe problem solved by hydraulic slide-rule. A. Hazen. *Eng N 76:85 Jl 13 '16*
- Velocity coefficients for a dredged drainage canal. P. V. Hodges. *il Eng N 76:1052-3 N 30 '16*
- Water flow increases with rising temperature. W. L. Butcher. *Eng N 76:326 Ag 17 '16*
- Water flow through pipe orifices. H. D. Fisher. *Am Soc M E J 38:1001 D '16*
- See also* Hydraulics; Stream flow; Stream measurement; Venturi meters; Water meters; Water pipes; Weirs

Water fronts

- Treatment of water-fronts. F. G. Newlands. *il Am Inst Arch J 4:154-9 Ap '16*

Water gages

- Durable water-gage safety appliance. *il Power 44:679 N 14 '16*
- Electrical boiler-water-level recorder. *il Elec W 68:827 O 21 '16*
- Home-made water level indicator with automatic signals. *il Elec W 68:765-6 O 14 '16*
- Long distance water stage recorder. *il Elec W 68:971 N 11 '16*
- Mercury column alarm for standpipes. W. E. Haseltine. *diag Am Water Works Assn J 3:104-6 Mr '16*
- Sensitive water-level recorder. E. J. Hoff. *il diags Eng N 76:974-5 N 23 '16*
- Voss water level indicators; abstract. B. Grey. *diag Am Soc M E J 38:603 Jl '16*
- Water level indicator. *il Power 43:216 F 15 '16*

Water gas. See Gas, Water**Water-gas tar. See Tar****Water hammer**

- Experiences in steam and water heating. C. L. Hubbard. *Dom Eng 76:390-1 S 16 '16*
- Pipe-line dead ends. *Power 44:626 O 31 '16*
- Water-hammer in the discharge line. G. A. Johnson. *il Power 44:105-6 Jl 18 '16*
- Water hammer in water service pipes. J. Graham. *diag Dom Eng 74:69 Ja 15 '16*

Water heaters

- Babbling furnace heats water. R. H. Parsons. *diag Elec Ry J 48:406 S 2 '16*
- Barometric condenser as an open water heater. D. P. Morrison. *diags Ry Age (Mech ed) 89:634 D '15*
- Expansion joint for water heater. *diags Ry Age (Mech ed) 89:628 D '15*
- Holyoke kerosene tank water heater. *il Dom Eng 76:435 S 23 '16*
- Water heating by gas engine exhaust. *diag Am Gas Light J 103:365 D 6 '15*

See also Electric water heaters; Feed water heaters; Gas water heaters; Hot water supply

Water heaters, Electric. See Electric water heaters**Water heaters, Gas. See Gas water heaters****Water heating**

- Amount of heat in water and steam. W. B. Gray. *Metal Work 86:613, 672 N 17, D 1 '16*
- Plumbing and heating details of plunges. *diags Metal Work 84:837-8 D 31 '15*
- Radiating surface required to heat water in tanks. *Heat & Ven 13:25 Je '16*
- See also* Hot water supply

Water hyacinth

- Water hyacinths in the Panama canal. *Sci Am S 81:308 My 13 '16*

Water laws

- Federal control of stream pollution. E. B. Phelps. *Eng Rec 73:173-4 F 5 '16*
- Laws and regulations regarding the use of water in Pan-American countries. R. G. Brown. *Gen Elec R 19:391-403 My '16*
- South American laws regulating hydro-electric enterprises. L. W. Schmidt. *Power 44:753-4 N 28 '16*
- See also* Water rights; Waterworks—Laws and regulations

Water level indicators. See Water gages**Water mains. See Water pipes****Water measurement**

- Data pertaining to water. G. C. Long. *Power 44:302 Ag 29 '16*
- New measuring flume. *plan Eng N 76:270-1 Ag 10 '16*
- See also* Stream measurement; Water flow; Water gages; Water meters; Weirs

Water meters

- Concrete water-meter boxes. *diag Eng N 75:614-15 Mr 30 '16*
- Creating a popular demand for water meters. *Eng N 75:1031 Je 1 '16*
- Cycloidal weir for water measurement. *Ry R 58:177 Ja 29 '16*; *Iron Age 97:433 F 17 '16*; *Elec R & W Elec'n 68:481 Mr 11 '16*; *Elec W 67:673 Mr 18 '16*; *Ry Mech Eng 90:157 Mr '16*; *Eng N 75:1049 Je 1 '16*; *Power 43:796-7 Je 6 '16*
- Experience with full meterage of water supply at Miles City, Mont. G. C. Pruett. *Eng & Contr 45:326-7 Ap 5 '16*; Same cond. *Munic Eng 50:227 Je '16*
- Experts report on meters for Chicago. *Eng Rec 73:478 Ap 8 '16*
- Measuring water with a weir meter. E. G. Bailey. *il plan Power 44:223-4 Ag 8 '16*
- Meter installation at Wilmington, Del.; abstracts of annual report. *il diags Eng & Contr 46:313-14 O 11 '16*; *Munic J 41:194 Ag 17 '16*; *Eng N 76:447-8 S 7 '16*; *Munic Eng 51:193-5 N '16*
- Meter maintenance and repair systematized in East Orange, N. J., water department. *Eng Rec 73:733-4 Je 3 '16*
- New water-meter policy for New York city. *Eng N 75:657 Ap 6 '16*
- Preparing Terre Haute water consumers for the introduction of water meters. *Eng & Contr 45:250-1 Mr 15 '16*
- Setting water meters at Terre Haute, Ind. J. A. Cravens. *il Munic Eng 51:45-6 Ag '16*
- Standard fittings for water meters. *Am Water Works Assn J 3:690-2 S '16*
- Water meters for large cities. *Munic J 40:763-4 Je 1 '16*
- Water meters for Philadelphia. C. E. Davis. *Eng N 76:720-1 O 12 '16*
- Water meters give remarkable results at Redondo, Cal. E. R. Bowen. *Eng N 76:910 N 9 '16*
- Water meters in South America. *Metal Work 85:773 Je 9 '16*
- Weir meter which gives flow directly proportional to head of water. *diag Eng & Contr 46:138 Ag 9 '16*
- Who pays for meters? J. Simpson. *Munic J 41:288-9 S 7 '16*
- See also* Venturi meters; Water flow; Water gages; Water supply; Water waste; Waterworks

Testing

- Equipment devised for testing water meters quickly in the field. W. T. McClenahan. *diags Eng Rec 74:315-17 S 9 '16*
- Portable testing water meter. *il Munic Eng 51:77-8 Ag '16*
- Rapid water-meter testing at Philadelphia. *il Eng N 75:230 F 3 '16*

Water pipes

- American water pipe in Egypt. *Power 44:355-6 S 5 '16*
- British made pipe; American superiority in manufacturing, packing and delivering not admitted. W. Stewart. *Iron Age 98:766-7 O 5 '16*
- Choice, installation and maintenance of water service pipes. W. S. Johnson. *Eng & Contr 45:344-5 Ap 12 '16*

Water pipes—Continued

- Condition and carrying capacity of old cast iron water pipe at Hartford, Conn. C. M. Saville. Eng & Contr 45:282-3 Mr 22 '16
- Constructing a small, steel water supply main in the Philippines. Eng & Contr 45:187-8 F 23 '16
- Contractors suggest schemes for subaqueous pipe line. E. N. Smith. Eng Rec 73:494 Ap 8 '16
- Coolgardie and Kalgoorlie pipe line. Engineer 122:147 Ag 18 '16
- Corrosion of 350-mile Australian steel pipe line 12 years old. P. V. O'Brien. Eng Rec 74:501-2 O 21 '16
- Desirability and method of connecting low-voltage secondary electrical circuits to water pipes—effect on the pipe system. B. McCollum and O. S. Peters. diags Eng & Contr 44:486-9 D 29 '15; Summary. Am Gas Light J 104:130 F 28 '16; Summary. Munic Eng 50:46 F '16
- Diagram giving excess loss of head in 90° bends. F. S. Bailey. Eng N 75:412-13 Mr 2 '16
- Durability of water pipes in service. Metal Work 86:674 D 1 '16
- Earthing electrical systems to water pipes. B. McCollum and O. S. Peters. diags Am Water Works Assn J 3:201-19 Mr '16; Same. Eng & Contr 44:486-9 D 29 '15; Summary. Am Gas Light J 104:130 F 28 '16; Summary. Munic Eng 50:46 F '16; Discussion. Am Water Works Assn J 3:219-23 Mr '16
- Experience in freezing of a subaqueous main laid in salt water and use of electricity to thaw out the main. W. W. Brush. Eng & Contr 46:37 Jl 12 '16
- Experiences with leadite joints at Springfield, Mass. A. E. Martin. Eng & Contr 45:207-8 Mr 1 '16
- Flexible piping layout. H. G. Gibson. plan Power 43:371-2 Mr 14 '16
- Formation of ice in water mains. Eng & Contr 46:47 Jl 12 '16
- Foundry rejections of cast iron pipe, Hartford, Conn., water works. C. M. Saville. Eng & Contr 46:228 S 13 '16
- Frozen soil conditions as affecting water services. J. B. Marvin. Eng & Contr 45:167-8 F 16 '16
- Galvanized pipes fill up. Metal Work 85:415 Mr 24 '16
- Graphical representation of the capacity of main water pipes. C. W. Sherman. map Eng & Contr 46:415 N 8 '16
- How water mains freeze up. W. W. Brush. Dom Eng 76:424 S 23 '16
- Laying a submerged water main by rope haulage. H. B. Hemstrought. il diag Eng N 75:124-5 Ja 20 '16
- Leakage from lead joints in cast-iron water pipes: abstract. A. H. Smith. Am Soc M E J 38:425 My '16
- Life of cast iron water pipe of the Hartford, Conn., water works. C. M. Saville. Eng & Contr 46:245-6 S 13 '16
- Lost-head diagrams for bends in water pipe. B. Moreell. diags Eng N 75:302-4 F 17 '16
- Making and laying home-made pipe for water mains. il Eng N 75:300-2 F 17 '16
- Method of supporting and insulating a cast iron main crossing a bridge. diag Eng & Contr 46:138-9 Ag 9 '16
- New rules governing the handling of water pipes and other underground utility structures encountered in excavating sewer trenches in Chicago. Eng & Contr 45:288 Mr 22 '16
- Opinions on service-pipe practice summarized: committee report of the New England water works association. Eng Rec 74:387-8 S 23 '16
- Pipe galleries and the location of mains. C. B. Burdick. diags Am Water Works Assn J 3:713-23 S '16
- Prevention of corrosion in pipe lines. F. N. Speller. diag Power 43:304-6. 590 F 29. Ap 25 '16; Same cond. Ry Mech Eng 90:227-9 My '16
- Relics of early water-works, Philadelphia. il Eng N 75:355 F 24 '16
- Results of questionnaire on life and depreciation of cast iron water pipe in 14 large American cities. Eng & Contr 44:466-7 D 15 '15
- St. Paul builds equipment for thawing frozen water pipes. il Eng Rec 73:328 Mr 4 '16; Elec W 67:658 Mr 18 '16
- Steel pipe for 37-inch water main 9½ miles long at Rochester recommended. E. A. Fisher. Eng Rec 74:40-1 Jl 8 '16
- Supply main sustains capacity for 28 years. Eng N 76:461 S 7 '16
- Tar coating protects high-velocity conduits. C. H. Paul. Eng Rec 73:108 Ja 22 '16; Same. Eng & Contr 45:56 Ja 19 '16; Same. Eng N 75:62-3 Ja 13 '16
- Use of 4-in. flexible bronze submerged water pipe at St. John, New Brunswick. Eng & Contr 44:468 D 15 '15
- Water mains laid during 1915; tabulation. Munic J 40:826-30, 864-8 Je 15-22 '16
- Water-supply system piping. A. J. Foulder. il Power 44:142 Jl 25 '16
- Water supply to dwellings and large buildings. J. Graham. diags Dom Eng 76:357-8; 77:39-40, 255-6 S 9, O 14, N 25 '16
- Water-works service pipes; preliminary report of New England water-works association committee. Eng N 76:594-6 S 28 '16; Same cond. Eng & Contr 46:328-9 O 11 '16
- See also Aqueducts; Hot water heating; Hot water supply; Pipe joints; Pipe laying; Pipes; Siphons; Thawing; Water conduits; Water flow; Water hammer; Water waste; Waterworks

Cleaning

- Scotch method of cleaning water mains. il Munic Eng 51:191-3 N '16
- Sterilizing water and cleaning mains; information from several hundred cities; tabulated. Munic J 41:152-6 Ag 10 '16

Failures

- Breaks in cast iron pipe lines. R. De L. French. Munic J 41:510 O 26 '16
- Causes of recent breaks in Seattle wooden stave water supply pipe line. Eng & Contr 45:197-8 F 23 '16
- Seattle water main collapse preceded by undermining. il Eng Rec 73:127 Ja 22 '16
- Why the Seattle wood-stave water pipe failed. R. H. Ober. il Eng N 75:242-4 F 3 '16

Leakage

See Water waste

Repair

- External corrosion of water pipe by sulphuric acid. H. P. Eddy. Boston Soc C E J 2:377-8 D '15
- Repairing an open joint in a submerged water main. E. M. LeFlury. Eng N 75:80 Ja 13 '16

Testing

- Data and discussion on cast iron pipe joint tests for the San Francisco high pressure fire system. A. J. Bowie. diags Eng & Contr 46:40-4 Jl 12 '16
- Method, cost and results of testing new water mains at Hartford, Conn. C. M. Saville. Eng & Contr 45:80-1 Ja 26 '16; Same abr. Eng N 75:89 Ja 13 '16
- Motor truck testing Chicago water mains. F. C. Perkins. il Eng & Contr 46:36 Jl 12 '16
- Mounted motor-driven pump tests Chicago water mains. il Eng Rec 73:177 F 5 '16
- Pipe lengths on light bents hold mains down during tests. diag Eng Rec 73:589-90 Ap 29 '16

Water pollution

- Cleaning up and improvement of a stream polluted by sewage and trade wastes. H. P. Eddy. Eng & Contr 46:140-4 Ag 9 '16
- Danger of pollution of water supply from population reservoir shores. Mrs. C. Scheuber; A. J. McLaughlin. Munic Eng 50:17-18 Ja '16
- Epidemic of typhoid fever due to the use of a polluted water supply at the 1915 assembly of old Salem Chautauqua; with discussion. H. F. Ferguson. il plan Am Water Works Assn J 3:874-84 S '16
- Essence of laws governing stream pollution in the United States. L. K. Sherman. Eng & Contr 45:301-2 Mr 29 '16
- Federal control of stream pollution. E. B. Phelps. Eng Rec 73:173-4 F 5 '16

Water pollution—Continued

- Investigation of the International joint commission upon the pollution of boundary waters. E. B. Phelps. W Soc E J 20:721-7; Discussion. 727-36 N '15
- Plans outlined for abating boundary water pollution. E. B. Phelps. Eng Rec 73:667-8 My 20 '16
- Pollution of New York harbor and its remedy. K. Allen. Il maps Eng & Contr 45:492-4 My 31 '16
- Proposed code for the sanitary control of waterways. Eng N 76:876-7 N 9 '16; Same. Eng Rec 74:582 N 11 '16
- Reaeration held to be important in self-purification of streams. E. B. Phelps. Eng Rec 74:617-18 N 13 '16
- Relationship of the epidemiologist to water works men. M. F. Boyd. Am Water Works Assn J 3:236-8 Mr '16
- Sources of water pollution. J. W. Hill. Am Water Works Assn J 3:184-91 Mr '16
- Water-borne dysentery epidemic. South St. Paul, Minn. Metal Work 85:192 F 4 '16
- See also* Filters and filtration; Sewage disposal; Water—Analysis; Water purification; Water supply

Water power

- Laws and regulations regarding the use of water in Pan-American countries. R. G. Brown. Gen Elec R 19:391-403 My '16
- Power estimates from stream flow and rainfall data. D. M. Wood. Boston Soc C E J 3: 77-120 Mr '16; Discussion. 3:299-328 Je '16
- Public concern in water power. G. O. Smith. Eng N 75:40-1 Ja 6 '16
- Railway electrification and cheap water power. Eng & Contr 45:456-7 My 17 '16
- Status of water-power development. H. W. Buck. Elec W 67:148-51 Ja 15 '16; Same cond. Sci Am S 82:166-7 S 9 '16
- Stream flow, not rainfall, best criterion for yield. C. Herschel. Eng Rec 74:103-4 JI 22 '16
- Stream flow, not rainfall, best criterion for yield? J. P. Wells. Eng Rec 74:330 S 9 '16
- See also* Dams; Hydraulic machinery; Hydroelectric plants; Hydroelectric power; Turbines; Water rights; Water wheels

Alabama

- Proposed co-operation in Muscle Shoals project unjustly criticised. H. Burgess. map Eng Rec 73:671-3 My 20 '16

Alaska

- Water power in Alaska. Power 44:503-4 O 3 '16

Canada

- Developing Winnipeg power at unusually low cost. Eng Rec 73:801 Je 17 '16
- Dominion reports 418,500 hp. on Winnipeg river. map Eng N 75:1104-5 Je 8 '16
- Water power possibilities of the Winnipeg river in Manitoba. diags Eng & Contr 46: 130-1 Ag 9 '16
- Water power resources of the Winnipeg river. Elec W 68:360-1 Ag 19 '16
- Water powers of Canada. Engineer 120:475-6, 509-10, 524-5, 546-7, 581-2 N 19-D 17 '15
- Water powers of Canada. Il Sci Am S 81:56-7 Ja 22 '16

Europe

- European hydro-electric power development. L. W. Schmidt. Power 44:98 JI 18 '16
- Government regulation of water powers in Europe. Metal Work 84:730 D 10 '15
- Nations of Europe encourage water power development. Elec W 67:974 Ap 29 '16

New Zealand

- Hydro-electric power in New Zealand. W. Wilson. maps Inst E E J 54:275-91 F 1 '16

South America

- South American laws regulating hydro-electric enterprises. L. W. Schmidt. Power 44: 753-4 N 28 '16

United States

- Analysis of Merrill report on water-power. Elec W 68:10-12, 69-70 JI 1-8 '16
- Concentration of control of public utilities; government report to Senate. Elec W 67:302-9, 362-4 F 5-12 '16

- Congress and the water power problem. Sci Am 115:492 D 2 '16
- Congress takes up the Myers water-power bill. Power 43:457 Mr 28 '16
- Conserving public water power. G. Pinchot. Sci Am 114:281 Mr 11 '16
- Electric power development in the U. S. H. H. Chapman. Am For 22:236-7 Ap '16
- Electrochemical industries and their interest in the development of water powers. L. Addicks. Am Inst E E Pro 35:333-40 My '16; Same cond. Met & Chem Eng 14:469-71 My 1 '16; Discussion. Am Inst E E Pro 35:1131-44 JI '16
- Federal water-power legislation. F. K. Lane. Elec W 66:1390 D 18 '15
- Forty million horse power wasted. H. L. Cooper. Il Sci Am 115:498-9 D 2 '16
- Looking squarely at the waterpower problem, by H. J. Pierce. Review by H. S. Drinker. Am For 21:1125-7 D '15
- National conservation congress advocates private development of water power. Power 43: 712-13 My 16 '16
- Necessity for the development of the water-power resources of the United States. H. J. Pierce. Elec W 67:191 Ja 22 '16
- New water power association formed. Elec R & W Elec'n 68:403-4 Mr 4 '16
- Niagara falls and American electrochemical industries; abstracts of papers at Washington meeting of American electrochemical society. Il Elec W 67:977-8 Ap 29 '16
- Niagara falls power and American industries; symposium of papers at Washington meeting of the American electrochemical society. Met & Chem Eng 14:507-15 My 1 '16
- Pacific coast waterpowers and electrochemical possibilities. E. P. Kennedy. Met & Chem Eng 15:279 S 15 '16
- Power possibilities of federal irrigation projects. A. P. Davis. Eng N 75:875 My 11 '16
- Present status of the water-power situation. H. W. Buck. Il Elec W 67:1153-4 My 20 '16
- Progress of water-power bill. Power 43:382-3 Mr 14 '16
- Relation of water power to transportation. L. B. Stillwell. Am Inst E E Pro 35:561-74 Mv '16; Abstract. Elec Ry J 47:822-3 Ap 29 '16; Discussion. Am Inst E E Pro 35:1131-44 JI '16
- Scouting for water power. D. N. Showalter. Eng N 76:389-90 Ag 31 '16
- Status of pending water power legislation. Power 44:256 Ag 15 '16
- U. S. government investigates water-power control. Power 43:270-2 F 22 '16
- Water power and defense. W. R. Whitney. Am Inst E E Pro 35:551-9 My '16; Discussion. 35:1145-65 JI '16
- Water-power bills now pending in Congress. Elec R & W Elec'n 68:1070-2 Je 10 '16
- Water power commission probable. Elec W 67: 525-6 Mr 4 '16
- Water power conferences at Washington; meetings of A. I. E. E. and American electrochemical society. Elec W 67:975-8 Ap 29 '16; Elec R & W Elec'n 68:790-1 My 6 '16; Power 43:675-6 My 9 '16
- Waterpower development. H. B. Walker. Met & Chem Eng 14:354-5 Ap 1 '16
- Water power development and the food problem. A. S. Cushman. map Am Inst E E Pro 35:541-50 My '16; Abstract. Met & Chem Eng 14:471-2 My 1 '16; Discussion. Am Inst E E Pro 35:1131-44 JI '16
- Water-power development in United States. J. C. Hoyt. Il Power 43:348-9 Mr 14 '16
- Water power laws and their relation to industry and progress. F. Darlington. Il Eng M 50:722-33 F '16
- Water power legislation. Am Soc M E J 38: 734-5 S '16
- Waterpower legislation. H. H. Chapman. Am For 22:242-3 Ap '16
- Water-power legislation and the senate. Power 43:343-4 Mr 7 '16
- Water-power legislation; synopsis of proposed laws now before Congress. Elec W 67:1398-9 Je 17 '16
- Water power situation, including its financial aspect. G. Dunn. Am Inst E E Pro 35:575-90 My '16; Discussion. 35:1145-65 JI '16
- See also* Niagara falls; Yosemite power company

Water proofing. See Waterproofing

Water purification

- Adaptation of flour and feed blending machine to feeding coagulants. W. T. McClenahan. *il diags Eng & Contr* 46:322-4 O 11 '16
- Arsenic content of filter alum; with discussion. E. Bartow and A. N. Bennett. *Am Water Works Assn J* 2:585-95 D '15
- Aspects of chlorination. J. Race. *Am Water Works Assn J* 3:439-49 Je '16; *Abstract. Eng Rec* 73:805 Je 17 '16
- Brookline iron-removal plant. *il plan Eng N* 76:448-9 S 7 '16
- Calcium hypochlorite for water sterilization. *Eng & Min J* 101:562 Mr 25 '16
- Change from alum to iron at Clarksburg water filters. P. Boynton. *Eng N* 76:927 N 16 '16
- Chlorinating the water-supply of Greater New York. T. D. L. Coffin. *il diags plan Eng N* 76:438-40 S 7 '16
- Chlorine gas reduced water sterilizing costs. C. O. Johnston. *Eng Rec* 73:740 Je 3 '16
- Clear drinking water from the Big Muddy. C. L. Edholm. *il Metal Work* 85:49-50 Ja 7 '16
- Cleveland water-supply to be purified and softened. *il diags plan Eng N* 76:732-5 O 19 '16
- Colloidal theories, applied to colored water, reduce cost of chemicals. G. F. Catlett. *il Eng Rec* 73:741-2 Je 3 '16
- Colloidal theories applied to water decolorization. M. F. Stein. *Eng Rec* 73:842 Je 24 '16
- Columbus waterworks will reclaim its spent lime. C. P. Hoover. *Eng Rec* 73:806 Je 17 '16
- Considerations in determining the point of application of liquid chlorine in the disinfection of water supplies. F. F. Longley. *Eng & Contr* 45:487-9 My 31 '16
- Constant-level orifice box feeding chemicals. W. Gavett. *diags Eng N* 75:785 Ap 27 '16
- Construction of 160 million gallon filter plant at St. Louis. J. C. Pritchard. *il diag plan Concrete* 8:260-5 Je '16
- Copper sulphate treatment of St. Paul, Minnesota, water supply. N. L. Huff. *il diags Am Water Works Assn J* 3:581-621 Je '16; *Excerpts. Eng & Contr* 46:39-40 Jl 12 '16; *Abstract. Eng Rec* 73:804-5 Je 17 '16; *Abstract. Eng N* 76:104 Jl 20 '16
- Cost and use of chemicals at purification plant of St. Louis, Mo. *Eng & Contr* 46:318-19 O 11 '16
- Cubic performance: rate of volumetric work done by sewage and water treatment devices. L. C. Frank. *diag Eng Rec* 72:751-2 D 18 '15
- Darnall siphon filter. *il Eng & Min J* 102:593 S 30 '16
- Data on the operation of the purification plant of Wilmington, Del. *Eng & Contr* 46:322 O 11 '16
- Design and operation of intermittently operated water purification plants. N. T. Veatch. *Am Water Works Assn J* 2:759-61 D '15
- Design and operation of ozone water purification systems. S. T. Powell. *diags J Ind & Eng Chem* 8:632-6 Jl '16
- Determining amount of filtered water to be wasted after washing. G. G. Black. *Eng & Contr* 46:419 N 8 '16
- Drifting-sand water filters for Toronto, Ont. *il diags plan Eng N* 76:566-70 S 21 '16
- Electric purification of water in swimming pool. *il Elec R & W Elec'n* 69:609 S 30 '16
- Electric water sterilizer. *il Elec R & W Elec'n* 68:1045 Je 3 '16
- Emergency hypochlorite plant. *diag Eng & Contr* 45:414 My 3 '16
- Engineers at American public health association convention discuss sanitary problems of water, sewage and garbage. *Eng Rec* 74:573-4 N 4 '16
- Essential elements in the purification of water by storage. C. G. Hyde. *Eng & Contr* 45:304-5 Mr 29 '16
- Experience in the chlorination of Milwaukee's water supply. H. P. Bohmann. *il Eng & Contr* 45:430-1 My 10 '16
- Experiences in tuning up St. Louis filters indicate what will not work. *Eng Rec* 74:532-3 O 28 '16
- Features of swimming pool control. W. L. Lewis. *J Ind & Eng Chem* 8:914-21 O '16
- Filter patent claims invalid; Minneapolis wins suit against Ira H. Jewell. *Eng Rec* 74:583-4 N 11 '16
- Filtered-water supply for Sacramento recommended in 660-page report. C. G. Hyde, G. H. Wilhelm and F. C. Miller. *Eng Rec* 74:403-4 S 30 '16
- Further development of iron removal plant and storage. F. C. Amsbary. *Am Water Works Assn J* 3:400-4 Je '16; Same cond. (Overcoming trouble from presence of larvae in Champaign-Urbana water supply). *Eng & Contr* 45:136 F 9 '16
- Ground water supplies treated for carbon dioxide removal in New Jersey. F. E. Daniels. *Eng & Contr* 45:47-8 Ja 12 '16
- Hydrated lime pays at Council Bluffs settling basins. J. B. Thornell. *il plan Eng N* 76:456-7 S 7 '16
- Hypochlorite or chlorine sterilization for water supply of Milwaukee. *Munic Eng* 50:30 Ja '16
- Improvements in the art of mechanical filtration. T. Fleming, jr. *il diags Eng Soc W Pa* 31:827-57 Ja '16; *Excerpt, with discussion (False bottoms in mechanical filters). Eng & Contr* 46:239-40 S 13 '16; *Discussion. Eng Soc W Pa* 31:858-83 Ja '16; *Excerpt (Automatic coagulant feeding device for mechanical filters). M. F. Newman. Eng & Contr* 46:45-6 Jl 12 '16
- Intake well which automatically separates sediment at Dubuque, Iowa, plant. *il diag Elec W* 68:575 S 16 '16
- Intermittent excess coagulant at Springfield, Mass. E. E. Lochridge. *Eng N* 76:617 S 28 '16; Same. *Eng & Contr* 46:316-17 O 11 '16
- Iron- and manganese-removal tests, Lawrence, Kan. *Eng N* 75:257 My 1 '16
- Iron removal by rapid sand filtration; with discussion. F. E. Hale. *diag Am Water Works Assn J* 3:123-41 Mr '16
- Liquid chlorine. G. OrNSTein. *Met & Chem Eng* 14:218 F 15 '16
- Liquid chlorine plant for San Jose, Cal., water co. P. D. Rice. *il Eng & Contr* 45:506 My 31 '16
- Manganese in ground water and its removal. S. B. Applebaum. *J Ind & Eng Chem* 8:160-3 F '16
- Manufacture of sulphate of alumina at the Columbus water softening and purification works. C. P. Hoover. *Am Water Works Assn J* 2:693-9 D '15; Same. *Eng Rec* 71:576-7 My 8 '15; Same. *Eng & Contr* 43:448-9 My 19 '15; *Discussion. Am Water Works Assn J* 2:693-702 D '15
- Maryland experiences in the disinfection of water supplies. R. B. Morse. *Eng & Contr* 45:396-7 Ap 26 '16
- Novel water-treatment plant at Excelsior Springs, Mo. *il diag Eng N* 75:400-1 Mr 2 '16
- Omaha coagulant plant uses improved alum process. *il Eng Rec* 74:435 O 7 '16
- Operation results of the water purification and softening plant of Fargo. N. D. F. La F. Anders. *Eng & Contr* 45:377-8 Ap 19 '16
- Outriggers and pulleys facilitate copper-sulphate treatment. *il Eng Rec* 74:644 N 25 '16
- Periods of filter service increased 250 per cent. J. W. Ellms and S. J. Hauser. *Eng Rec* 74:643-4 N 25 '16
- Practice in the removal of iron from municipal water supplies. J. W. Schwab. *Eng & Contr* 46:247-9 S 13 '16
- Preliminary report upon purification of swimming pools of the State university of Iowa. J. J. Hinman, jr. *il Eng & Contr* 46:135-6 Ag 9 '16
- Present status of disinfection of water supplies; with discussion. F. F. Longley. *Am Water Works Assn J* 2:679-92 D '15
- Pressure chamber equalizes wash-water distribution at Miraflores filters. G. C. Bunker. *il diags Eng Rec* 72:787-9 D 25 '15
- Pressure filters. H. C. Stevens. *Am Water Works Assn J* 3:388-97 Je '16; *Excerpts. Eng & Contr* 46:33 Jl 12 '16
- Purification of running water by ozone. *Sci Am S* 82:147 S 2 '16
- Purification of water supplies. E. O. Jordan. *Sci Am S* 81:406-7 Je 24 '16

Water purification—Continued

- Purifying water at a coal plant; Holden, W. Va. Coal Age 9:331 My 27 '16
- Red water and suggested remedies. N. S. Hill, jr. Stevens Ind 33:126-47 Ap '16; Excerpt. Eng & Contr 46:232 S 13 '16
- Situation at Little Falls, New Jersey; with discussion. F. W. Green. Am Water Works Assn J 3:170-4 Mr '16
- Small mechanical filter plant, with automatic equipment throughout, Pleasanton, Kan. E. E. Harper. diags Eng & Contr 46:246-7 S 13 '16
- Special devices installed to improve operation of new mechanical filters at Chillicothe, Mo. E. E. Harper. diags Eng Rec 74:320-2 S 9 '16
- Special features of four new water purification plants in Indiana. J. C. Diggs. Eng & Contr 45:309-10 Mr 29 '16
- Sterilization of Chicago's water supply. Eng & Contr 45:398 Ap 26 '16
- Sterilizing water and cleaning mains; information from several hundred cities; tabulated. Munic J 41:152-6 Ag 10 '16
- Ultra-violet ray purifies water at cement plant. il Eng Rec 74:200 Ag 12 '16
- War's demands cause prices of waterworks chemicals to soar; abstracts. W. F. Monfort. Eng Rec 73:258-9 F 19 '16; Eng N 75:530 Mr 16 '16
- Water purification processes used by municipal plants in cities of more than thirty thousand population. Munic J 41:39 Jl 13 '16
- Water refining for cities. W. T. Sedgwick. Eng N 76:513 S 14 '16
- Water sterilization by chlorine gas. il Munic Eng 49:210 D '15
- Water supplies of interstate common carriers on the Great Lakes. H. P. Letton. il diags map Am Water Works Assn J 3:364-84 Je '16
- Water supply for troops in the field. J. J. Hinman, jr. bibliog Eng & Contr 46:29-31 Jl 12 '16
- Wooden filters prove economical for temporary exposition water supply. E. C. Eaton. il diags plan Eng Rec 72:748-51 D 18 '15
- See also* Feed water purification; Filters and filtration; Oil separators; Water—Bacteriology; Water softening; Water supply

Bibliography

- Books on purification of water. Munic Eng 50:56-7 F '16
- Water rates**
- Decreasing cost of water service in Omaha, Neb. Eng & Contr 45:456 My 17 '16
- Effect of water rate changes. Munic Eng 51:180 N '16
- Maintenance and operation of water works at South Bend, Indiana. Eng & Contr 45:8 Ja 5 '16
- Meter rates; tabulation. Munic J 40:757-62 Je 1 '16
- Settling the Princeton, Ind., water rate case. Eng & Contr 45:329-30 Ap 5 '16
- Suggestion for making water rates. Eng N 76:999 N 23 '16
- Terre Haute water rates cut. Eng N 74:1293 D 30 '15
- Water meter rates recommended by New England water works association. Munic Eng 50:134 Ap '16
- Water-supply losses discussed; meter rates adopted. Eng N 76:960 N 16 '16
- Water rights**
- Compensation in kind involved in Hartford water case. C. M. Saville. Eng N 76:246-7 Ag 10 '16
- How to appraise water rights. H. Barker. Eng N 75:1179-82 Je 22 '16
- Legislation needed to control use of ground water. C. H. Lee. Eng Rec 72:786 D 25 '15
- Pioneer in water-right laws. C. T. Johnston. Eng Rec 74:359 S 16 '16
- Power plants and factories moved at Seneca Falls. il diags Eng N 76:145-9 Jl 27 '16
- State engineer's river survey guides water adjudicators. P. A. Cupper. Eng N 76:5-6 Jl 6 '16
- Underground-water dispute in California cities. K. Q. Volk. Eng N 75:12 Ja 6 '16

- Valuation of water rights for power companies. J. P. Newell. Eng N 75:651-2 Ap 6 '16
- See also* Riparian rights; Water laws; Water supply
- Water sampling**
- Methods of sending specimens of water. J. J. Hinman, jr. Am Water Works Assn J 3:224-8 Mr '16; Same. Eng & Contr 44:467-8 D 15 '15
- Portable water sampler. F. M. Heidelberg. diags Eng & Min J 102:343-4 Ag 19 '16
- Water skis**
- Water shoes for sporting and military purposes. il Sci Am 114:623 Je 10 '16
- Water softening**
- Booth water softener with increased settling space. diag Ry Mech Eng 90:324 Je '16; Ry Age 60:1184 Je 2 '16
- Bubbly Creek water softening plant. C. A. Jennings. Am Water Works Assn J 3:385-7 Je '16; Same. Eng & Contr 45:137 F 9 '16
- Columbus waterworks to make its own lime. C. P. Hoover. il Munic J 39:945-6 D 23 '15
- Experiment with natural water softening zeolite. R. N. Kinnaird. Eng Rec 72:794 D 25 '15
- Experiments in water softening with a zeolite-like substance. R. N. Kinnaird. Am Water Works Assn J 3:242-4 Mr '16
- Neutralizing and softening mine drainage water. J. R. Campbell. il Coal Age 8:874-7 N 27 '15
- Refinite process of water softening. il Textile World 51:2947 Je 24 '16
- Softening water with Permutit. S. B. Applebaum. il plan Power 43:198-9 F 8 '16
- Successful water softening and what it costs the village of Hinsdale. C. B. Williams. Am Water Works Assn J 3:405-8 Je '16; Same. Eng & Contr 45:297-8 Mr 29 '16
- Water softening by filtration. il Eng M 51:sup 6-7 Je '16
- Water softening by filtration. Munic Eng 50:50 F '16
- Water softening by filtration through artificial zeolite; with discussion. D. D. Jackson. il Am Water Works Assn J 3:423-33 Je '16
- Water softening by Permutit. Am Soc M E J 33:191 F '16
- Water softening practice. S. A. Greeley. diag Am Water Works Assn J 3:142-62 Mr '16
- Water treatment on the Missouri Pacific. il Ry Age 60:1593-4 Je 30 '16
- See also* Feed water purification; Water purification
- Water storage**
- Cat and kitten holes in outlet of dam control high and low flood discharges. diags Eng Rec 74:162-3 Ag 5 '16
- Essential elements in the purification of water by storage. C. G. Hyde. Eng & Contr 45:304-5 Mr 29 '16
- Impounded waters of Alabama in relation to public health. E. B. Kay. Am Water Works Assn J 2:657-78 D '15
- Pumping station will make deep Idaho lake available as equalizer for Bear river. il diags map Eng Rec 74:68-70 Jl 15 '16
- Statistics of storage of filtered water. Eng & Contr 46:319 O 11 '16
- Water-power storage reservoir with pumping station, Bear lake. il diags plans map Eng N 76:67-9 Jl 13 '16
- See also* Dams; Reservoirs
- Water supply**
- Judge Pope construes expression "good and wholesome water." T. A. Hayden. Eng Rec 73:450-1 Ap 1 '16
- Sanitation on watersheds. Eng N 76:813-14 O 26 '16
- Seattle water supply. J. Weinzi. J Ind & Eng Chem 8:369-71 Ap '16
- Tropical water supplies, with special reference to the Canal Cruz and to Vera Cruz, Mexico. J. T. B. Bowles. il Am Water Works Assn J 3:482-92 Je '16

Water supply—Continued

Water works operator's interest in epidemiology. M. F. Boyd. Eng & Contr 44:475 D 22 '15

See also Aqueducts; Artesian wells; Catskill aqueduct; Dams; Drinking fountains; Feed water; Filters and filtration; Fire service; Hot water supply; Hydrants; Irrigation; Mining engineering—Water supply; Plumbing; Pumping machinery; Pumping stations; Railroads—Water supply; Reservoirs; Ships—Water supply; Water; Water companies; Water consumption; Water meters; Water pollution; Water purification; Water rights; Water supply engineering; Water tanks; Water towers; Water waste; Waterworks; Wells

Rates

See Water rates

Alabama

Impounded waters of Alabama in relation to public health. E. B. Kay. Am Water Works Assn J 2:657-78 D '15

Arizona

Melted snow supplies water to arid district. plan Eng N 76:135 S 7 '16

California

Sanitary features of Los Angeles aqueduct. B. A. Heinly. il Munic J 40:35-7 Ja 13 '16

Great Britain

Water supply in 1915. Engineer 121:6-8 Ja 7 '16

Hawaiian Islands

Tunneling for water in Oahu. K. Q. Volk. Eng N 75:498-9 Mr 16 '16

Idaho

Experiments on the economical use of irrigation water in Idaho. D. H. Bark. il U S Agric Bul 339:1-57 '16

Iowa

Driven well supply of Muscatine, Iowa. W: Mollis. Am Water Works Assn J 3:398-9 Je '16

Kansas

State control of Kansas water supplies. C. A. Haskins. Munic J 40:264-6 F 24 '16

Water-supply of 500,000 gal. daily from river springs at Herington, Kan. diags map Eng N 75:831 My 4 '16

Maine

Madison-Anson water-supply. diag Eng N 76: 542 S 21 '16

Ohio

Water from gravel wells. C. W. Wiles. Am Water Works Assn J 2:625-6 D '15; Same. Metal Work 85:282 F 25 '16; Discussion. Am Water Works Assn J 2:626-8 D '15

Philippine Islands

Small domestic water supply system in the Philippines. il Eng & Contr 45:336 Ap 5 '16

Transvaal

Water supply on the Rand. Engineer 122:173-4 Ag 25 '16

Utah

Artesian water supply development at Ogden, Utah. F. J. Hendershot. Eng & Contr 44: 465-6 D 15 '15

Economical water-supply from flowing wells at Ogden, Utah. il plan Eng N 75:1212 Je 29 '16

Washington (state)

See Seattle, Washington—Water supply

Water supply, Rural

Dual water supply system in suburban home. il plan Metal Work 86:140-2 Ag 4 '16

Farm water supplies; causes of pollution and precautions to be taken. Sci Am S 82:127-8 Ag 19 '16

Modern plumbing for the country home. diag Metal Work 85:738-9 Je 2 '16

Proper use of rams for farm water-supplies. W. G. Kirchoffer. plan Eng N 75:457-8 Mr 9 '16

Sanitary equipment of a country estate, Southold, Long Island. il diags plans Metal Work 85:807-8 Je 16 '16

School water supply and waste disposal. il diag Metal Work 86:493-4 O 20 '16

Solution of a water supply problem. plan Metal Work 85:313-15 Mr 3 '16

Water supply and sewage disposal systems for suburban and farm premises. P. H. Bryce. diags Dom Eng 74:356-8 Mr 18 '16

Water supply systems for country homes. J. E. Taggart. Metal Work 84:801-2 D 24 '15

Water supply systems for rural districts. il diag Metal Work 86:33-5, 106-8 Jl 14, 28 '16

Water supply engineering

Conditions encountered and methods employed in laying water pipes in the congested streets of New York city. M. Blatt. Eng & Contr 44:246-7 S 29 '15; Same cond. Metal Work 84:804 D 24 '15

Defense of the infiltration gallery. A. Potter. Eng & Contr 45:215-16 Mr 1 '16

Design, construction and unit costs of Sooke lake water supply works, Victoria, B. C. C. H. Rust. il Eng & Contr 45:182-4 F 23 '16; Same cond. Eng N 74:996-7 N 18 '15

Intakes and intake lines; committee report. Ry Age 61:745 O 27 '16

Inverted syphon in a suction main. K. C. Kastberg. Eng & Contr 46:415 N 8 '16

Mass diagram for power and water-supply computations. W. L. Butcher. Eng N 76:376-8 Ag 24 '16

Method of tapping a 6-ft. main into concrete and steel shaft under pressure. J. Skelton. Eng & Contr 46:44-5 Jl 12 '16

New gravity water-supply for Aberdeen, Wash. il Eng N 75:603 Mr 30 '16

New Quincy, Ill., intake characterized by provision against accumulation of sand. il Eng Rec 73:13 Ja 1 '16

New water supply for Guayaquil. il diags plan Engineer 122:407-9, 418 N 10 '16

New water supply for Le Roy, N. Y. involves earth dam, filters and pipe line. J. P. Wells. il Eng Rec 73:735-6 Je 3 '16

Old brick intake tunnel shows low Kutter factor. D. H. Maury and R. E. Horton. il Eng N 76:460-1 S 7 '16

Pipe-line at the Nevada Wonder mine. J. A. Burgess. Am Soc M E J 38:502-3 Je '16

Rapid filters over pipe gallery at Alton, Ill. P. Hansen. Eng Rec 73:318 Mr 4 '16

Report of committee of American water works association on city planning. Am Water Works Assn J 3:704-6 S '16

Reservoir improvements at Castleton, N. Y. H: W. Taylor. il Munic J 40:101-2 Ja 27 '16

Seattle water works improvements. il map Munic J 41:65-8 Jl 20 '16

Spring water for Fort Huachuca. R. C. Hardman. plan Eng N 75:1032-3 Je 1 '16

Throttling gates save 300,000 gal. of water daily. C. M. Saville. Eng Rec 73:184 F 5 '16

Variations in precipitation as affecting water works engineering. C. P. Birkinbine. il maps Am Water Works Assn J 3:1-62; Discussion. 62-103 Mr '16

Water basin for city of Omaha constructed by day labor, using new special devices. H. V. Knouse. il diags Eng Rec 74:527-9 O 28 '16

Water supply of Salem, Mass. W: S. Johnson. il diags map Boston Soc C E J 3:1-18 Ja '16; Excerpts. Eng & Contr 45:127-8 F 9 '16; Discussion. Boston Soc C E J 3:19-22 Ja '16

Wilson avenue water tunnel, Chicago; H. W. Clausen. il W Soc E J 21:373-93 My '16; Same abr. (Tunnel muck turned into concrete lining). Eng Rec 73:568-70 Ap 29 '16; Abstract. Eng N 75:969-73 My 25 '16; Abstract. Eng & Min J 102:299-301 Ag 12 '16; Discussion. W Soc E J 21:393-402 My '16

See also Aqueducts; Dams; Filters and filtration; Irrigation; Mining engineering—Water supply; Pipe laying; Plumbing; Pumping machinery; Pumping stations; Pumps; Railroads—Water supply; Siphons; Water conduits; Water flow; Water hammer; Water meters; Water pipes; Water storage; Water towers; Waterworks; also Catskill aqueduct, Los Angeles aqueduct

Water supply for factories

Encouraging water drinking. Factory 17:78+ J1 '16

Water supply for road construction

Cheap water supply for concrete mixer on road construction. il Munic Eng 51:206 N '16
Water supply for concrete pavement construction. Eng & Contr 45:425-7 My 10 '16

Water tanks

Automatic alarm system for water tanks. il Elec W 67:504-5 F 26 '16
Concrete railway water tanks eleven years old. il Eng N 75:1027 Je 1 '16
Device for controlling pumps. diags Coal Age 8:1020 D 18 '15
Expansion tank in basement. il Metal Work 85:75-6 Ja 7 '16
New style railway water tanks. diags Ry R 53:408-9 Mr 18 '16
Novel and reliable tank float. H. R. Rockwell. il Power 43:332 Mr 7 '16
Sand blasting and painting steel water tank. Eng & Contr 46:125-6 Ag 9 '16
Shaping water tanks to symbolize the industry they protect. W. B. Redfern. il Eng & Contr 44:486 D 29 '15
Signal for water-supply tank. C. J. Fuetter. diag Coal Age 8:801 N 13 '15; Same. Eng & Min J 100:968 D 11 '15
See also Water towers

Water taps

How to determine the size of tap and meter. J. Klein. Am Water Works Assn J 2:755-8 D '15

Water towers

Combination standpipes and elevated water tanks. il diag Eng N 76:692-3 O 12 '16
Design and construction of world's highest reinforced concrete water tower-tank, Middleboro, Mass. G. A. Sampson. il diags Eng & Contr 44:473-5 D 22 '15
Elevated tank shaped like flour bag. Campbell flour mills co., Toronto. il Eng Rec 74:396 S 23 '16; Munic J 41:336 S 14 '16; Eng & Contr 46:319 O 11 '16; Munic Eng 51:157 O '16
Inclosing 2,500,000-gal. steel water tank with masonry. il Eng N 75:109-10 Ja 20 '16
Milk-bottle water tank. Toronto. Can. il Eng N 74:1136 D 9 '15; Eng Rec 72:772 D 18 '15
Old and new water tanks at Princeton, N. J. R. W. Becker. il diag Eng N 75:150-2 Ja 27 '16
Ornamental water tower at Kenmore, Ohio. il Eng & Contr 45:335 Ap 5 '16
Raising tank 50 feet on cribbing, tied together with plank. J. P. Eichleay. il Eng Rec 74:632 N 18 '16
Six-post water-tower tank. diags Eng N 76:888-90 N 9 '16
Steel water holders. il Munic J 39:931 D 16 '15
Water tower for high-pressure system of Boston, Mass. il Munic Eng 50:54-5 F '16
See also Water tanks

Water towers, Concrete

New concrete water tank for the Panama railroad. il Ry R 59:58-9 J1 8 '16
Reinforced-concrete tower tank 172 feet high. G. A. Sampson. il Eng Rec 73:279-80 F 26 '16
System of home-made wall forms as worked out by two builders. il diags Concrete 8:127-8 Mr '16
See also Standpipes, Concrete

Water-tube boilers. See Boilers, Water-tube**Water waste**

Checking excessive water consumption in Framingham, Mass. Eng & Contr 45:283 Mr 22 '16
Figures on water waste. Dom Eng 73:334-5 D 11 '15
Finding leaks and weaknesses in Baltimore water mains. Eng N 76:991 N 23 '16
Improvements to the water supply of St. John's, Newfoundland. F. F. Longley. il map Am Water Works Assn J 3:415-22 Je '16; Same cond. (Water pressure raised and waste survey made). Eng N 75:452-3 Mr 9 '16; Excerpt (Approximate original methods and subsequent special device for measuring water waste). Eng & Contr 45:555-6 Je 21 '16
Leakage from pipe joints. Munic J 41:544 N 2 '16

Leakage from pipe joints warrants investigation. F. A. Barbour. Eng Rec 74:385-6 S 23 '16; Same cond. Eng & Contr 46:315 O 11 '16

Leakage survey of Syracuse water mains. il Munic J 40:9-10 Ja 6 '16

Losses in fire hydrants. C. M. Saville. Munic J 40:38-40 Ja 13 '16

Plumbing code and control of plumbers. S. G. Highland. il Am Water Works Assn J 2:762-72; Discussion. 772-88 D '15

Prevention of water waste on railroads. C. R. Knowles. il Am Water Works Assn J 3:469-81 Je '16; Same cond. Ry R 57:718-20 D 4 '15

Venturi waste detector. il Munic J 41:53-4 J1 13 '16

Water consumption and waste prevention at Washington. Eng N 75:210-11 F 3 '16

Water losses in city systems. F. A. Barbour. Eng N 76:958-60 N 16 '16; Same (Committee wants data on pipe-joint leakage to check \$4,000,000 annual loss). Eng Rec 74:616 N 18 '16

Water-supply losses discussed; meter rates adopted. Eng N 76:960 N 16 '16

See also Seepage; Water meters

Water wheels

Average efficiency of waterwheel influenced by size of bucket. J. S. Carpenter. Eng Rec 73:795-6 Je 17 '16

Governing system for water wheels. A. Walton. Textile World 51:1875+ Ap 15 '16

Impulse wheels developed for silt-laden water. J. W. Swaren. il diags Eng N 75:740-4 Ap 20 '16

Light home-made waterwheel for irrigation. diags Eng N 76:409-10 Ag 31 '16

Memoranda on certain early types of turbines or other water wheels. C. W. Sherman. il Boston Soc C E J 3:23-5 Ja '16

Power developed by current waterwheel. Power 43:27 Ja 4 '16

Water will wear even steel. V. W. Killick. il Eng Rec 74:466 O 14 '16

See also Turbines

Water works. See Waterworks

Water works association, American. *See* American water works association

Water-works association, New England. *See* New England water-works association

Waterbury, Connecticut

Clock on the Green. il Arch Rec 40:192 Ag '16

Waterloo, Iowa**Water supply**

Water supply of Waterloo, Iowa. J. P. Berry. Munic Eng 50:8 Ja '16

Waterproofing

Austin dam; waterproofing the rock foundation. F. S. Taylor. il Munic Eng 51:133-6 O '16

Back of Elephant Butte dam coated by cement gun from raft as pool rises. Eng Rec 73:400 Mr 18 '16

Capitol terraces at last made waterproof. il diags Eng N 76:629-32 O 5 '16

Costs of applying mortar with the cement gun. Eng N 75:460 Mr 9 '16

Design features of the 3,500,000-gal. reinforced concrete reservoirs for Lansing, Mich. diag Eng & Contr 46:418-19 N 8 '16

How to waterproof drawings. F. W. Salmon. Eng N 76:1037 N 30 '16

Insulating and waterproofing the roof of an underground room. diags Concrete 8:133-5 Mr '16

Integral waterproofing compounds favored. Eng Rec 74:618 N 18 '16

Making concrete damp-proof. L. W. Page. Factory 17:486+ O '16

Proportioning waterproofing material in concrete. Munic Eng 51:147-8 O '16

Review of various experiences in waterproofing. R. B. Sleight. Concrete 8:171-3 Ap '16

Sealing Seattle's reservoir. il Munic J 41:253-6 Ag 31 '16

Soap-and-alum waterproofing. Concrete 8:272 Je '16

Waterproof coal pits and fireproof ashpits. diags Eng N 76:635 O 5 '16

Waterproofing—Continued

- Waterproofing a concrete tank with the cement gun. N. F. Ambursen. *il Eng N 75:1044 Je 1 '16*
- Waterproofing concrete surfaces. A. M. Wolf. *Concrete 8:153 Ap '16*
- Waterproofing cures expansion that wrecks roof. *il diags Eng N 75:946-7 My 18 '16*
- Waterproofing membrane intact after extreme expansion. *il diags Eng N 75:893 Ap 27 '16*
- Waterproofing of concrete. T. W. Dix. *Munic J 41:10-11 Ji 6 '16*
- Waterproofing of mortars by anthracene oil; abstract. R. Feret. *Am Soc M E J 38:347 Ap '16*
- Waterproofing practice in the New York subways. J. Rosenzweig. *il Ry R 58:363-6 Mr 11 '16*
- Waterproofing the Lackawanna railroad's new viaducts. G. J. Ray. *diag Eng N 75:430 Mr 2 '16*; Same. *Ry R 58:401-2 Mr 18 '16*; Same. *Eng Rec 73:588 Ap 29 '16*

See also Corrosion and anti-corrosives

Waterproofing of textiles

- Waterproof covering for ceilings. *il Textile World 51:1005 F 5 '16*
- Waxing of fabrics. *Textile World 51:366 Ja 1 '16*

Watersheds

- Croton watershed area. E. Wegmann; C. C. Vermeule. *Eng N 76:664 O 5 '16*
- Croton watershed area is corrected. *Eng Rec 74:441-2 O 7 '16*; Abstract. *Eng N 76:576 S 21 '16*; Abstract. *Munic J 41:385 S 28 '16*; Excerpts. *Eng & Contr 46:313 O 11 '16*
- Erosion of watersheds and its prevention. B. Brooks. *Am Water Works Assn J 3:409-14 Je '16*

Waterways

- Analysis of the waterways movement. H. G. Moulton. *Ry R 58:243-7 F 12 '16*
- Decision of the chief of engineers, U. S. A., against the Illinois waterway. *Eng & Contr 45:253-4 Mr 15 '16*

See also Canals; Channels; Rivers; Water fronts; also English channel

United States

See also Great Lakes; Mississippi river

Waterwheels. *See Water wheels***Waterworks**

- Aesthetics of water works design. J. W. Armstrong. *Am Water Works Assn J 3:706-13 S '16*
- Artistic touches for simple water-works structures. *il Eng N 76:433-4 S 7 '16*
- Automatic water-works for Milltown. N. J. C. Potts. *il diags plans Eng N 75:1117-19 Je 15 '16*; Same cond. *Power 44:193-4 Ag 8 '16*
- Choice of alloys for water work design. H. Carpenter. *Am Water Works Assn J 2:351-8 Je '15*; Same abr. *Eng & Contr 43:333-4 Ap 14 '15*; Excerpts. *Metal Work 85:25 Ja 7 '16*
- Data for water-works design in tropical countries. F. W. Dalrymple. *Eng N 75:50 Ja 13 '16*
- Difficulties in the designing and operation of medium sized water plants. E. B. Black. *Am Water Works Assn J 3:434-8 Je '16*; Excerpts. *Power 43:929 Je 27 '16*
- Hibbing waterworks system. *il Munic J 41:311-12 S 14 '16*
- Leading situations in the waterworks field. *Eng Rec 73:6-7 Ja 1 '16*
- Modernizing the Manchester water-works. *diags map Eng N 75:642-4 Ap 6 '16*
- Producer-gas engines drive water-works pumps at Wheaton, Ill. *plan Eng N 76:602-3 S 28 '16*
- Reconstruction of the municipal water works, Cambridge, Ohio. W. J. Sherman. *Boston Soc C E J 3:189-201 My '16*
- Seattle water-works troubles. C. E. Fowler. *il map Eng N 75:585-8 Mr 30 '16*
- Water supply of Aberdeen. *il diag plan maps Engineer 121:515-17, 524 Je 23 '16*
- Water supply problems along the Ohio river. W. Frank. *il Munic Eng 50:84-6 Mr '16*

Water-works improvements at Sioux Falls, S. D. *il plan Eng N 76:840-2 N 2 '16*

See also Filters and filtration; Hydrants; Pumping machinery; Pumping stations; Pumps; Reservoirs; Water pipes; Water purification; Water supply; Water supply engineering; Water towers; Water waste

Accounting

- Accounting system of New York department of water supply. L. E. Stander. *J Account 22:81-9 Ag '16*
- Interpretation of water works accounts. M. Wolff. *Am Water Works Assn J 3:529-56 Je '16*; Discussion. *3:735-9 S '16*

Cost

- Construction costs of certain rapid sand filter plants. *Eng & Contr 46:409 N 8 '16*
- Meter and pumping costs in Detroit. T. A. Leisen. *Eng Rec 73:552 Ap 22 '16*
- Operating cost of certain rapid sand filter plants. *Eng & Contr 46:313 O 11 '16*

Finance

- Assessing costs of extensions in a municipally owned plant. D. A. Reed. *Am Water Works Assn J 2:612-16 D '15*; Same cond. *Eng & Contr 43:447-8 My 19 '15*; Discussion. *Am Water Works Assn J 2:617-24 D '15*
- Assessing water main extensions. *Munic J 40:365 Mr 16 '16*
- Inconsistencies shown in water and sewer laws. W. L. Butcher. *Eng Rec 74:284-5 S 2 '16*
- Making water consumers pay for sewer service. *Eng N 76:512 S 14 '16*
- Public water-works financing. W. L. Butcher. *Eng N 75:1036-7 Je 1 '16*
- Revenue and operating expense of municipally owned water works in Massachusetts for the year 1913. C. W. Sherman. *Eng & Contr 46:236-7 S 13 '16*
- Water supply of London; summary of report of the Metropolitan water board. *Engineer 122:328-9 O 13 '16*

Laws and regulations

- Broad state control of Maryland water supplies. R. B. Morse and H. R. Hall. *Eng & Contr 45:450 My 17 '16*
- Discussion of 14 important features of water works operation—Montana regulations governing water service. *Eng & Contr 45:48-50 Ja 12 '16*
- Standard water-rate forms adopted in Montana. *Eng N 76:648-9 O 5 '16*

Maintenance and repair

- Cost of meter maintenance and repair at Chicago. *Eng & Contr 46:420 N 8 '16*
- Emergency gang in a water service. G. H. Finneran. *Eng & Contr 46:326-7 O 11 '16*
- Experiences operating Miles City water system during 45 consecutive days below zero. G. C. Pruett. *Eng & Contr 45:437-8 My 10 '16*; Same. *Munic Eng 50:189-90 My '16*
- Meter maintenance and repair systematized in East Orange, N. J., water department. *Eng Rec 73:733-4 Je 3 '16*

Management

- Chicago's water supply situation controlled by pins. J. Ericson. *Eng Rec 72:798 D 25 '15*
- Construction cost keeping by the Mason City, Iowa, water department. W. A. Judd. *Eng & Contr 44:446-7 D 8 '15*
- Effective method for handling bad water complaints. *Eng & Contr 46:405-6 N 8 '16*
- Emergency water-service gangs find weak spots. G. H. Finneran. *Eng Rec 74:386-7, 404 S 23-30 '16*
- Experience with a card consumers' ledger. W. E. Haseltine. *Am Water Works Assn J 3:346-55 Je '16*; Summary. *Eng Rec 73:805 Je 17 '16*
- Handling of water main extension projects at Washington, D. C. C. P. Heins. *Eng & Contr 45:454-5 My 17 '16*
- Hartford waterworks notes. *Munic J 40:333-4 Mr 9 '16*
- Ideal organization for waterworks described. H. A. Whitney. *Eng Rec 74:323 S 9 '16*

Waterworks—Continued

- Increasing water works efficiency under city manager government. Eng & Contr 45:446-7 My 17 '16
- Maintenance and operation of water works at South Bend, Indiana. il plan Eng & Contr 45:3-9 Ja 5 '16
- Making up a foreman's plat, water department, Washington, D. C. C. P. Heins. diag Eng & Contr 45:451 My 17 '16
- Organization of the Baltimore water department. Eng N 76:790-1 O 26 '16
- Plumbing code and control of plumbers. S. G. Highland. il Am Water Works Assn J 2: 762-72; Discussion. 772-88 D '15
- Recent water works publicity campaign at Terre Haute, Ind. D. R. Gwinn. Eng & Contr 45:500-2 My 31 '16
- Suggestions pertaining to the operation of water works plants. J. W. Toyne. Eng & Contr 45:169-70 F 16 '16
- Water-works service pipes; preliminary report of New England water-works association committee. Eng N 76:594-6 S 28 '16; Same cond. Eng & Contr 46:328-9 O 11 '16
- See also Water meters; Water waste; Waterworks superintendents

Rates

See Water rates

Statistics

- Data on electric water-supply pumping for thirty-seven Iowa communities; tabulation. Elec W 68:423 Ag 26 '16
- Large water-works figures. Eng N 74:1273 D 30 '15
- Profitable water works in Wisconsin villages. Eng & Contr 45:442 My 10 '16
- Significant water-works census averages. C. W. Sherman. Eng N 75:1185 Je 22 '16
- Statistics of Canadian water works. Eng & Contr 46:134 Ag 9 '16
- Water mains laid during 1915; tabulation. Munic J 40:826-30, 864-8 Je 15-22 '16
- Water works appurtenances set in 1915. Munic J 41:292-4 S 7 '16
- Water works improvements—1916; tabulation. Munic Eng 50:154-5 Ap '16
- Waterworks in the larger cities. Munic J 41: 6-7 Jl 6 '16
- Waterworks statistics for 1915. Munic J 40: 750-62 Je 1 '16

Valuation

- Bath, Maine, acquires properties of Maine water company at less than reproduction cost. Eng & Contr 45:250 Mr 15 '16
- Intangible values in water systems, with special reference to the water right. O. von Geldern. Eng & Contr 44:471-3 D 22 '15
- Purchasing water-works plant of Bath, Maine. F. H. Fay. Eng N 75:481 Mr 9 '16
- Reproduction cost as purchase price of water works. Munic Eng 50:182 My '16
- Results of questionnaire on life and depreciation of cast iron water pipe in 14 large American cities. Eng & Contr 44:466-7 D 15 '15
- Seattle waterworks valuation without litigation. Eng Rec 73:355-6 Mr 11 '16
- Unusual water-works purchase, Los Angeles, Cal. B. A. Heinly. Eng N 75:554-6 Mr 23 '16
- Valuation of water works properties. H. P. Gillette. Eng & Contr 43:394-5, 486-8; 44:14-18, 80-1, 157-8, 258-61, 356, 424-7; 45:9-11, 99-100, 362-3 My 5, Je 2, Jl 7, Ag 4, S 1, O 6, N 3, D 1 '15, Ja 5, F 2, Ap 19 '16

Water works association, American. See American water works association

Water-works association, New England. See New England water-works association

Waterworks superintendents

- Written examination in selection of water works superintendent at Niagara Falls, N. Y. Eng & Contr 44:447-8 D 8 '15

Watt, James, 1736-1819

- Unpublished letters of James Watt. H. W. Dickinson. Am Soc M E J 38:99 Ja '16

Watt-hour meters

- Allowable meter errors; tabulation. Elec R & W Elec'n 69:462 S 9 '16

How the Public service co. of northern Illinois uses watt-hour meters on feeders. il Elec W 68:716-17 O 7 '16

Induction watt-hour meter. V. L. Hollister. diags Am Inst E E Pro 34:1217-35 Je '15; Discussion. 35:49-57 Ja '16

Measuring three-phase power by a watt-hour meter. A. L. Temple. il diags Power 43:142-4 F 1 '16

Method of determining the correctness of polyphase wattmeter connections. W. B. Kouwenhoven. bibliog diags Am Inst E E Pro 35:159-82 F '16; Discussion. 35:721-5 My '16

Saving power with watt-hour meters. F. V. Skelley. il Elec Ry J 47:813-15 Ap 29 '16

Scheme for connecting watt-hour meters for comparison or test. H. Mulford. diag Elec W 67:942 Ap 22 '16

Wattmeters

Thermo-electric wattmeter. diags Elec W 68: 972-3 N 11 '16

Wattmeter connections in unbalanced systems. E. S. Lee. Gen Elec R 19:212-14 Mr '16

Wave motion

Wave or vortex. Sci Am S 82:44 Jl 15 '16

Wave-producing tank; device for studying wave motion on an experimental basis. il Sci Am 115:46 Jl 8 '16

Waves

Air breakwater put to severe test. il Sci Am 114:403 Ap 15 '16

Brasher air breakwater. il diags Engineer 121:414-15 My 19 '16

Calming rough water with compressed air. il diag Eng N 75:1166-7 Je 22 '16

Effect of wind velocity on wave heights. B. E. Hayden. Eng & Contr 46:406 N 8 '16

Height of waves in the Belle Fourche reservoir. D. C. Henny. Eng N 75:1235 Je 29 '16

Preservation of sandy beaches. E. J. Dent. diags Sci Am S 82:236-9 O 7 '16

Standing-wave experiment. R. E. Horton. diag Eng N 75:658 Ap 6 '16

32-element harmonic synthesizer. D. C. Miller. bibliog il diags J Fr Inst 181:51-81 Ja '16

Wave proportions and their effects. A. R. Liddell. Engineer 121:474 Je 9 '16; Same. Sci Am S 82:160 S 2 '16

See also Electric waves; Light; Shore protection; Sound; Vibration; Wave motion

Waves, Electric. See Electric waves

Wax

Ceanothus velutinus (snow brush) as a source of wax and tannin. C. C. Scallione and H. S. Blakemore. il J Ind & Eng Chem 8:411-13 My '16

Wealth

See also Banks and banking; Success

Weapons. See Arms and armor; Bayonets; Guns; Rifles

Weather

Physician and the Weather bureau. F. A. Carpenter. Sci Am S 81:178-9 Mr 18 '16

Volunteer weather observers. Sci Am 115:56 Jl 15 '16

Weather records. See monthly numbers of Heating and ventilating magazine

See also Atmospheric pressure; Phenology; Weather forecasts

Weather bureau. See United States—Weather bureau

Weather forecasts

American weather forecasting. Sci Am 115: 346 O 14 '16

How the United States Weather bureau was started. C. Abbe. Sci Am 114:529 My 20 '16

Storm warnings for herders of sheep. Sci Am 115:343 O 7 '16

Weather vanes

Various vane. C. F. Talman. il Arch Rec 39: 191-5 F '16

Weatherboarding

New idea in weatherboarding. T. C. James. il Bldg Age 38:60 Ja '16

Weaving

Broken weaves for novel designs. T. Welsh. il Textile World 51:33+ D 4 '15

Weaving—Continued

- Calculation of weave room productive efficiency. S. P. Munroe. *Textile World* 51:3453+ Ag 5 '16
- Combined color and weave effects. T. Woodhouse. *il diag Textile World* 51:566+ Ja 15 '16
- Complicated draft problems. *il Textile World* 51:423 Ja 8 '16
- Constructions for plain and fancy white cloths. *il Textile World* 51:1071 F 12 '16
- Reeding woolen and worsted fabrics. R. Beaumont. *il Textile World* 51:3025 J 1 '16
- Spinning and weaving in early times. H. R. Carter. *Sci Am S* 82:154-5 S 2 '16
- Weaves for linen, cotton and union huckabacks. T. Woodhouse. *il diag Textile World* 51:1771 Ap 8 '16
- Weaving Bedford cords. *diag Textile World* 51:970 F 5 '16
- Weaving of cotton and silk border handkerchiefs. *il Textile World* 51:4829+ N 11 '16
- See also* Bedford cord; Cotton weaving; Looms; Textile industry and fabrics; Woolen and worsted manufacture

Wedges

- Wedge reactions. *Mach* 22:804 My '16

Weed burners

- Portland weed burner. F. P. Malze. *Elec Ry J* 47:47 Ja 1 '16

Weed cutters

- Fairmont mowing machine. *il Ry R* 58:793 Je 3 '16

- Motor cars for weeding and mowing. *il Ry Age* 59:1144 D 17 '15

Weeds

- Chemicals for weed killing. R. M. Chipman. *Eng N* 76:1047 N 30 '16
- Cost of track weeding. *Eng N* 75:1000 My 25 '16
- Farming for weeds. *Sci Am* 115:409 N 4 '16

Weighing

- Determining the weight of stone in vessels. A. S. Ackerman. *Boston Soc C E J* 3:203-6 My '16; *Excerpt. Eng & Contr* 45:549-50 Je 14 '16
- Measuring the water used in power-plant tests. C. G. Richardson. *il Power* 43:640-3 My 9 '16
- Method of weighing water in boiler test. *diag Metal Work* 85:316 Mr 3 '16
- Micro-weighing. *Sci Am* 80:395 D 18 '15
- See also* Balances; Coal weighing; Scales

Weighing machines

- Handling materials in manufacturing plants. R. L. Streeter. *il Eng M* 51:254-5 My '16
- See also* Track scales

Weights and measures

- English lineal measures. J. Stormonth and others. *Engineer* 122:258, 280, 301 S 22-O 6 '16
- How to translate Argentine prices. E. F. DuBrul. *Eng & Min J* 102:106 J 1 '16
- Origin of English measures of length. C. M. Watson. *Am Gas Light J* 104:115-17 F 21 '16
- Stone measurement. *Metal Work* 85:306 Mr 3 '16
- Table converting millimeters to inches. T. A. Rance. *Foundry* 42:502a D '15
- Tables for estimating stone or concrete trim. W. E. Corbett. *Eng N* 75:34 Ja 6 '16
- Weight of elliptical bars per running inch. W. L. Tryon. *Foundry* 44:134a My '16
- Weights of solid octagonal iron castings. R. R. McGowan. *Foundry* 44:106a Mr '16; *Correction*. 44:134a Ap '16

- See also* Decimal system; Electric measurement; Gages; Gaging; Mensuration; Metric system; Standards of length

Weirs

- Cycloidal weir for water measurement. *Ry R* 58:177 Ja 29 '16; *Iron Age* 97:433 F 17 '16; *Elec R & W Elec'n* 68:481 Mr 11 '16; *Elec W* 67:673 Mr 18 '16; *Ry Mech Eng* 90:157 Mr '16; *Eng N* 75:1049 Je 1 '16; *Power* 43:796-7 Je 6 '16
- Irrigation weir box. *diag Eng & Contr* 45:414 My 3 '16
- Is the model weir unreliable? B. D. Moses. *Eng Rec* 73:246 F 19 '16
- Measuring water with a weir meter; abstracts. E. G. Bailey. *il plan Power* 44:223-4 Ag 8 '16; *Met & Chem Eng* 15:267-8 S 1 '16

- New method of deriving weir formulas. T. R. Running. *diag Eng N* 76:695-6 O 12 '16
- Standard irrigation weir. V. M. Cone. *diags Eng N* 76:222-3 Ag 3 '16
- Test made of model weir. B. D. Moses. *diags Eng Rec* 73:487 Ap 8 '16

Welding

- Acetylene in the car shop. G. E. Haar. *diags Elec Ry J* 48:939 O 28 '16
- Aluminum welding. H. B. Hoover. *il diag Mach* 22:1032-5 Ag '16
- Autogenous welding of aluminum. *Metal Work* 86:405-6 S 23 '16
- Autogenous welding of boiler plates; abstract. *Am Soc M E J* 38:351 Ap '16
- Autogenous welding of steel tubing. *il Iron Age* 97:135-8 Ja 13 '16
- Brief descriptions of welding processes. M. W. Ward. *diags Power* 43:478-9 Ap 4 '16
- Broken cylinder repaired by autogenous welding. P. J. McGrath. *diags Eng N* 76:77-8 J 13 '16
- Double thermit weld. R. W. Miller. *diags Ry Mech Eng* 90:257 My '16
- Electric and oxy-acetylene welding. *Int Marine Eng* 20:564-5 D '15
- Explosion of a welded ammonia absorber. *il Locomotive* 30:238-42 O '15
- Fluxes for oxy-acetylene welding. S. W. Miller. *il Mach* 21:786-9 Je '15; *Same*. *Sci Am S* 82:158-9 S 2 '16
- Frame making and repairing. G. A. Hartline. *diag Ry Age* 61:317 Ag 25 '16; *Same*, with discussion. *Ry Mech Eng* 90:464-5 S '16
- Gas welding and cutting; discussion. *Eng Soc W Pa* 31:719-26 N '15
- Gas welding and cutting; welding heavy parts. C. K. Bryce. *il Eng Soc W Pa* 31:696-707 N '15
- High speed steel tipped lathe tools. E. J. McKernan. *il diags Ry Mech Eng* 90:200 Ap '16; *Same*. *Iron Age* 97:902 Ap 13 '16
- High temperature flames in metal working. H. R. Swartley, Jr. *Iron Age* 96:1122 N 11 '15; *Same*. *Sci Am S* 80:403 D 25 '15
- Hoke-Phoenix platinum melting torch. *il Metal Ind n s* 13:515-16 D '15
- How not to use the oxyacetylene torch. W. G. Broadhurst. *Eng Rec* 74:149 J 29 '16
- How to make oxy-acetylene welds. H. Cave. *il Eng M* 51:724-33 Ag '16
- How to use the oxy-acetylene process. H. Cave. *il Eng M* 51:521-7 J 1 '16
- Largest weld ever made; repair of their cast iron shear bed. *il Eng M* 51:sup6-7 S '16
- Limitations of the oxy-acetylene process. H. Cave. *il Ind Management* 52:186-92 N '16
- Methods employed in spanning the treacherous Brazos river with two 10-in. gas mains. C. R. Sutton. *il Eng & Contr* 45:441-2 My 10 '16
- Obstacles to installing water-back overcome with oxy-acetylene weld. *diags Elec W* 67:720 Mr 25 '16
- Oxy-acetylene cylinder weld. M. C. Whelan. *diag Ry Mech Eng* 90:388 Ag '16
- Oxyacetylene vs. arc welding. J. H. Schmidt. *Eng & Min J* 101:906 My 20 '16
- Oxyacetylene-welded casing for deep well. F. R. Goehler. *Eng & Min J* 101:939-40 My 27 '16
- Oxy-acetylene welding. *Engineer* 122:234 S 15 '16
- Oxy-acetylene welding and cutting equipment. M. K. Dunham. *Mach* 22:336 D '15
- Oxyacetylene welding at Braden. A. Ek and J. R. Thill. *il Eng & Min J* 100:928-30 D 4 '15
- Oxy-acetylene welding in textile mills. *il Textile World* 51:993+ F 5 '16
- Oxy-acetylene welding of aluminum. S. W. Miller. *il Mach* 22:461-7 F '16; *Abstract. Eng M* 51:122 Ap '16
- Oxy-acetylene welding practice. S. W. Miller. *diags Mach* 22:404-6 Ja '16; *Same*. *Sci Am S* 81:202-3 Mr 25 '16
- Oxy-acetylene welding practice. S. W. Miller. *il Mach* 22:575-80 Mr '16
- Oxy-acetylene welding rapidly taking its place in distribution work as a means by which many things hitherto considered impossible can be accomplished. C. Wilde. *Am Gas Light J* 105:297-9 N 6 '16
- Oxy-acetylene welds replace flanged pipe connections. *il Elec Ry J* 47:49 Ja 1 '16

Welding—Continued

- Power-plant welding outfit. E. S. Fitz. Power 44:93-4 JI 18 '16
- Production, properties and use of thermalene; abstract. diag Am Soc M E J 38:757 S '16
- Repair-shop applications of oxy-acetylene. il Elec Ry J 47:550-5 Mr 18 '16
- Repairing electric locomotive resistance grids. T: B. Ray. il Elec Ry J 47:322-4 F 12 '16
- Repairing split and corroded pipe with an oxy-acetylene welder. il Eng & Contr 45:416 My 3 '16
- Short cut in welding mill pinions. F. N. Keithley. il diags Iron Tr R 59:165-6 JI 27 '16
- Short cut in welding rolling mill pinions. il diags Foundry 44:220-1 Je '16
- Strength of oxy-acetylene welds. S. W. Miller. il Mach 22:886-7 Je '16
- Symposium on welding as applied to boilers. Power 43:724-5 My 23 '16
- Tests of autogenous welds of boiler plate. E. Höhn. il diags Locomotive 31:103-15, 118-23 O '16 (to be cont)
- Tests of welded pipe connections. F. H. Sibley. il Iron Tr R 59:568-9 S 21 '16
- Tube welding. G. Massar. Ry Mech Eng 90:463-4 S '16; Same. Ry Age 61:316-17 Ag 25 '16
- Two welded gas mains laid under Brazos river. il Eng N 75:1044-5 Je 1 '16
- Two welded-joint failures. E. Höhn. il diags Power 43:357-8 Mr 14 '16
- Universal flue welding machine. il Iron Age 98:1170-1 N 23 '16
- Visits of inspector Brown. J. E. Terman. il Power 43:577-9 Ap 25 '16
- Weld repair to engine frame. il Power 43:685-7 My 16 '16
- Welded offset pipe connections. il Power 43:623-4 My 2 '16
- Welding a dredge dipper. il Eng & Contr 46:337 O 18 '16
- Welding a 4,000-ft. steam main. il Power 43:359-60 Mr 14 '16
- Welding aluminum automobile bodies. C. R. Sutton. il Iron Age 97:937-9 Ap 20 '16; Same. Metal Work 85:577-9 Ap 28 '16; Same abr. Metal Ind n s 14:220 My '16; Same abr. Met & Chem Eng 14:548-9 My 1 '16
- Welding high-speed steel blocks to tool steel shanks. diags Mach 22:979 JI '16
- Welding high speed steel to soft steel shanks. H. W. Harris. diags Ry Mech Eng 90:87-8 F '16
- Welding large pipe under difficulties. il Iron Tr R 57:1287 D 30 '15
- Welding of high pressure mains at Springfield, Mass.; abstracts. A. S. Hall. il Am Soc M E J 38:351-2 Ap '16; Am Gas Light J 104:196-8 Mr 27 '16
- Welding tubing by oxy-acetylene. il plan Iron Tr R 59:117-19 JI 20 '16
- Welding well casing with oxy-acetylene torch. F. L. Hadley. Eng & Contr 46:234-5 S 13 '16
- See also Electric welding; Lead burning; Solder and soldering; Welding machines
- Cost**
- Comparative costs between acetylene and arc welding. Elec R & W Elec'n 68:71 Ja 8 '16
- Cost of welded pipe joints. Am Gas Light J 104:141 F 28 '16
- Record cylinder weld. J: Foster. il Ry Mech Eng 90:199-200 Ap '16
- Tests of pipe connections; results at University of Kansas with oxy-acetylene joints and screwed fittings. Iron Age 97:552-3 Mr 2 '16; Excerpts. Mach 22:619 Mr '16
- Welding an engine frame. il Power 43:320-1 Mr 7 '16
- Welding large pipe. il Foundry 44:465 N '16
- Welding, Electric.** See Electric welding
- Welding machines**
- Detroit butt welding machine. il Mach 22:533-4 F '16
- Welfare work in industry**
- Aids to employes of world's largest hatters; John B. Stetson co. M. D. Gehris. il Textile World 51:3559+ Ag 12 '16
- Annual fete day at Ellsworth. R. D. Hall. il Coal Age 8:808-11 N 13 '15
- Cogs in the industrial wheel; welfare work and what it means. Mrs. M. A. C. Brereton. Illum Engr 9:283-90 S '16
- Co-operative activities of railway employees. B. Hall. il Elec Ry J 48:441-3 S 9 '16
- Cost of health supervision of employees; with table. M. W. Alexander. Iron Age 98:910-11 O 19 '16
- Efficiency makers for manufacturers. W. Webb. il Textile World 51:631, 633 Ja 15 '16
- Employes' service department. O: P. Geier. Am Ind 17:9-11 N '16
- Employing methods that make good workers. R. T. Kent. Iron Age 98:244-7 Ag 3 '16
- Features of welfare work at Duquesne, Pa. il Iron Age 97:193-6 Ja 20 '16
- First aid for mill employes. il Textile World 51:510+ Ja 15 '16
- How a great corporation got 5000 to play. C. G. Elliott. il Ry Age 61:139-43 JI 28 '16
- How to increase factory efficiency. O. M. Becker. il Eng M 51:813-26 S '16
- Human engineering; welfare or fellowship work in manufacturing plants. A. T. Morey. il Ry R 59:523-6 O 14 '16
- Industrial welfare work. S. H. Moore. Am Gas Light J 104:279, 282 My 1 '16
- Mutuality-basis of welfare work. R. C. Forster. il plans Textile World 51:683+ Ja 15 '16
- Remington arms plant, Bridgeport, Conn. il Iron Age 97:296-303 F 3 '16
- Remington small arms factory represents effective preparedness. il Iron Tr R 58:246-9 Ja 27 '16
- Schoolfield welfare work. H. E. Hylton. Textile World 51:685+ Ja 15 '16
- Tire makers active in welfare work. il Automobile 35:885-7 N 23 '16
- Welfare department a factory necessity. il Automobile 35:350-1 Ag 31 '16
- Welfare work. C: R. Towson. Textile World 51:1765-6 Ap 8 '16
- Welfare work in a steel foundry; the Reading steel casting company. il Iron Age 96:520-1 S 2 '15; Same. Metal Work 84:753 D 10 '15
- Welfare work of the Lehigh Valley coal co. Coal Age 9:175-6 Ja 22 '16
- See also Coal miners; Factory clubs; Factory sanitation; Industrial betterment; Lunch rooms; Profit sharing; Safety devices and measures
- Well water.** See Wells
- Welland ship canal**
- Contractors' methods on Welland ship canal work present interesting variations. il plan Eng Rec 74:490-4 O 21 '16
- Twelve 2000-ton cribs for Welland canal completed. il Eng Rec 73:220 F 12 '16
- Welland ship canal, Canada. Engineer 122:242 S 15 '16
- Wellesley college**
- Central dormitory. il plans Brickb 25:39-41, pl 5-12 F '16
- Wells**
- Deep bore-wells for public water supply purposes. W. H. Maxwell. diags Engineer 121:371-2 My 5 '16; Abstract (Lining wells with cast iron and cement grouting). Eng N 76:150 JI 27 '16
- Drilling and constructing driven wells. J: D. Kilpatrick. Eng & Contr 45:85-6 Ja 26 '16
- Driven well supply at Muscatine, Iowa. W: Molis. Am Water Works Assn J 3:398-9 Je '16
- Driving a well to the Trinity sands at Dallas, Texas. il Eng & Contr 45:541-2 Je 14 '16
- Dynamite and small bucket help deep-well sinking. il Eng N 75:947 My 18 '16
- Dynamiting a deep well to increase the flow. G. F. Alderson. il Eng & Min J 102:939 N 25 '16
- Extending drilled-well casing. F. M. Benjamin. diags Power 43:374 Mr 14 '16
- Flow of water into wells; approximate theory. N. Werenskiold. diags Eng N 76:256-7 Ag 10 '16
- Good engineering in solving the emergency water supply problem of the Panama Pacific international exposition. E. C. Eaton. Eng & Contr 44:427-9 D 1 '15

Wells—Continued

- Hibbing waterworks system. *il* Munic J 41:311-12 S 14 '16
- Lining a 114-ft. well with precast concrete rings. *diags* Eng N 76:608-9 S 28 '16
- Manganese in ground water and its removal. S. B. Applebaum. *J Ind & Eng Chem* 8:160-3 F '16
- Pumping water for irrigation; the well. L. Schmeer. *Eng & Contr* 45:489-91; 46:34-6, 62-6 My 31, *Jl* 12-19 '16
- Pumping water from wells on the Salt river project. *Eng & Contr* 46:124 Ag 9 '16
- Recedence of water level in deep wells. L. R. Stark. *Power* 43:706 My 16 '16
- Relation of river stage to water level in nearby wells. C. A. Haskins. *Eng & Contr* 45:242 Mr 8 '16
- Segregated well pumping. W. J. Wills. *Munic J* 40:584 Ap 27 '16
- Unit wells at Lincoln, Neb. P. W. Doerr. *il* Eng & Contr 45:505 My 31 '16
- Vitrified pipe as well casing. *il* Eng N 76:461-2 S 7 '16
- Water from gravel wells. C. W. Wiles. *Am Water Works Assn J* 2:625-6 D '15; Same. *Metal Work* 85:282 F 25 '16; Discussion. *Am Water Works Assn J* 2:626-8 D '15
- Well-pumping difficulties solved by double casings filled with gravel. E. C. Eaton. *il* Eng Rec 72:769-70 D 18 '15
- Wells cased with vitrified pipe. *diag* Eng & Contr 46:316 O 11 '16
- See also* Artesian wells; Drilling and boring (earth and rocks); Petroleum; Water, Underground
- Wells, Artesian.** *See* Artesian wells
- Welsbach company, Gloucester, New Jersey**
Welsbach company moves into new buildings. *il* Am Gas Light J 105:289-90 O 30 '16
- Welsbach managers meet. *il* Gas Age 38:29-31 *Jl* 1 '16
- Wentworth institute, Boston, Massachusetts**
Making of a skilled mechanic. *il* *diags* Iron Age 97:69-74 Ja 6 '16
- Wentworth institute power plant course. C. L. Hubbard. *il* *Power* 44:152-5 Ag 1 '16
- Werkspoor-Diesel engine.** *See* Diesel engines, Marine
- West Point military academy.** *See* United States—Military academy
- West Virginia**
See also Geology—West Virginia
- Floods**
- Cloudburst on Cabin Creek. J. Keely. *Coal Age* 10:756-7 N 4 '16
- West Virginia coal mining institute**
Meeting at Bluefield. *Coal Age* 9:1005-7 *Je* 10 '16
- 16th semiannual meeting, Fairmont, W. Va., Dec. 8-9. *Coal Age* 8:1033-6 D 25 '15
- Western association of electrical inspectors**
Annual meeting, Chicago, Jan. 24-28, 1916. *Elec R & W Elec'n* 68:184-5, 228 Ja 29-F 5 '16
- Annual meeting, Chicago, Jan. 25-28. *Elec W* 67:245-6 Ja 29 '16
- Western electric company**
Annual report for 1915. *Elec W* 67:788 Ap 1 '16
- Western Maryland railway**
Reorganization. *Ry Age* 61:785-6 N 3 '16
- 7th annual report. *map Ry Age* 61:682, 727-8 O 20 '16
- Studies in operation. *map Ry Age* 61:183-9 Ag 4 '16
- Western society of engineers**
Code of ethics. *Eng & Contr* 45:255-6 Mr 15 '16; Excerpts. *Eng N* 75:579-80 Mr 23 '16
- Western society of engineers, Journal of**
Index; volumes 1-20 (1896-1915). *W Soc E J* 20:1-89 D '15
- Westinghouse air brake co.**
Preparedness day at Wilmerding. *Ry Age* 60:1222-4 *Je* 9 '16
- Railroad preparedness day. *Ry R* 58:834-6 *Je* 10 '16

Westinghouse electric and manufacturing company

- Big output on limited floor space. H. C. Estep. *il* *diag* plans Iron Tr R 58:695-705 Mr 30 '16; Same. *Foundry* 44:145-55 Ap '16
- Present status of the electrical industry; abstracts. G. E. Tripp. *Elec R & W Elec'n* 69:547-8 S 23 '16; *Elec W* 68:561-2 S 16 '16
- Westinghouse club; technical education of employees. *il* *Automobile* 35:942-3 N 30 '16

Westinghouse-Leblanc air ejector

- New vacuum apparatus. G. L. Kothny. *il* *diags* Int Marine Eng 20:556-8 D '15

Wharves

- Cellular type of quay wall at Halifax terminals compared with other designs. *diags* Eng Rec 73:213-15 F 12 '16
- Halifax ocean terminals. *il* *diags* maps Eng N 74:1118-23 D 9 '15
- Large volume of concrete handled in small batches at Halifax ocean terminals. *il* *diags* plan Eng Rec 73:143-6 Ja 29 '16
- Special mechanical devices needed at small wharves. J. W. Swaren. *il* Eng Rec 74:176 Ag 5 '16
- See also* Docks; Piles and pile driving; also subdivision Wharves under names of cities, e.g. New York (city)—Wharves

Wheat

- Overlooked investigations on wheat. W. P. Headen. *J Ind & Eng Chem* 8:283 Mr '16
- See also* Flour

Wheel gages

- Gage for checking the location of wheels on the axle. H. W. Stull. *diags Ry Mech Eng* 90:514 O '16

Wheels

- Blakoe double trefoil steel wheel. *il* *Automobile* 35:219 Ag 10 '16
- Casting hubs onto wheels in a specialty shop. *il* *Foundry* 44:211-13 *Je* '16
- Dimensions of standard hand wheels. J. Leafstrom. *Foundry* 44:418a O '16
- See also* Automobiles—Wheels; Axles; Car wheels; Gearing; Grinding wheels; Pulleys; Sheave wheels; Tires; Turbines; Water wheels

Wheelways

- Concrete tracks proposed for an earth road. *diag* Eng N 76:469 S 7 '16
- Use of paved wheelways on roads of Holland. J. Spaander. *diag* Eng N 76:714 O 12 '16

Whistles

- Solenoid-operated whistle. W. G. Brookins. *il* *Power* 43:523 Ap 11 '16

White House

- Personal reminiscences of Charles Follen McKim; McKim and the White House. G. Brown. *Arch Rec* 39:84-8 Ja '16

White lead

- California white lead manufacturing plant. *il* *Metal Work* 85:95-6 Ja 14 '16

- White lead and oxides in 1915. *Eng & Min J* 101:57-8 Ja 8 '16

White oak. *See* Oak**White-pine blister rust.** *See* Pine—Diseases and pests**Whitney, Willis Rodney**

- Willard Gibbs medal award. *por J Ind & Eng Chem* 8:559-60 *Je* '16

Whittemore, Don Juan, 1830-1916

- Services to engineering. E. E. R. Tratman. *Eng N* 76:182 *Jl* 27 '16
- Sketch. *por Eng N* 76:140 *Jl* 20 '16; *Eng Rec* 74:124 *Jl* 22 '16

Wild goose plum

- Chemical changes occurring during the ripening of the wild goose plum. J. S. McHargue. *Am Chem Soc J* 38:718-22 Mr '16

Wilksburg, Pennsylvania**Railroads**

- Pennsylvania railroad's improvements. *il* plan *Ry R* 59:335-7 S 9 '16
- William II, emperor of Germany, 1859-**
Kaiser as a draughtsman. *il* *Sci Am* 114:447 Ap 29 '16

Williams, Ralph D., 1868-1916

Editor, art critic, historian. por Iron Tr R
59:313-14 Ag 17 '16

Willow

Willows; their growth, use, and importance.
G: N. Lamb. il U S Agric Bul 316:1-52 '15

Willys-Overland co.

New headquarters. il Automobile 35:660-1 +
O 19 '16

Wilmington, Delaware**Water supply**

Data on the operation of the purification plant
of Wilmington. Eng & Contr 46:322 O 11 '16
Meter installation at Wilmington, Del.; ab-
stracts of annual report. il diags Eng &
Contr 46:313-14 O 11 '16; Munic J 41:194 Ag
17 '16; Eng N 76:447-8 S 7 '16; Munic Eng
51:193-5 N '16

Wilson, Woodrow, 1856-

Portrait, by T. Cole. Inland Ptr 56:780 Mr '16

Winchell, Newton Horace, 1839-1914

N. H. Winchell and the American geologist.
H. F. Bain. Econ Geol 11:51-62 Ja '16
Work of N. H. Winchell in glacial geology and
archæology. W. Upham. por Econ Geol 11:
63-72 Ja '16

Wind motors

Anemometric paradox; a wind motor that is
not affected by the direction of the wind. R.
Villers. il Sci Am S 81:108 F 12 '16

Wind pressure

Chart for wind-pressure formulas. Eng N 75:
952 My 18 '16
Comparative designs of office buildings; wind
bracing. F. Ruchti. diags W Soc E J 21:669-
82 O '16

Design of steel stacks. W. A. Hitchcock. diags
Eng & Contr 46:369-72 O 25 '16

Philadelphia electric company power station
A-2 has four 12-foot steel stacks 165 feet
high. il diags Eng Rec 73:240-3 F 19 '16

Steel skeleton of Bell Parkway building con-
tains heavy portal framing. il diag plan Eng
Rec 73:712-13 My 27 '16

Table and chart for wind-pressure formulas.
H. B. Wrigley. Eng N 75:327 F 17 '16

Wind damages highway bridge over Kankakee
river. C. Older. il Eng Rec 74:344-5 S 16 '16;
Same cond. Eng N 76:638-9 O 5 '16

Wind pressure on flags determined. Eng Rec
74:466 O 14 '16

Wind tunnels. See Aerodynamic laboratories**Winding machines**

Cloth winding arbor. diag Textile World 51:
2573+ My 27 '16

Cloth winding machine. diags Textile World
51:3205 Jl 15 '16

Cop winding mechanism. diags Textile World
51:4469 O 14 '16

Machine for unraveling and winding yarn.
diag Textile World 51:2496+ My 20 '16

New Lancashire cloth winder. il Textile World
51:755 Ja 15 '16

Tension device for winding machines. diag
Textile World 51:119+ D 11 '15

Winding and measuring ribbons. diag Textile
World 51:3737+ Ag 26 '16

Window cards. See Show cards**Window dressing. See Show windows****Windows**

Air leakage through windows. S. C. Voor-
hees and H. C. Meyer, jr. Heat & Ven 13:36
F '16

Better metal windows. diag Metal Work 85:346
Mr 10 '16

Code of lighting; factories, mills and other
work places. plans Illum Eng Soc 10:609-16
no 8 '15

New idea in windows. il diag Eng N 75:951 My
18 '16

Top pattern sash balance makes possible large
glass area. diags Concrete 9:107-8 S '16

Window leakage. S. F. Voorhees and H. C.
Meyer, jr. il diags Heat & Ven 13:25-31 Ap
'16; Same cond. Metal Work 85:127-9 Ja 21
'16

Window that is different from other windows.
il Sci Am 115:18+ Jl 1 '16

See also Bay windows; Car windows;
Glass; Show windows; Skylights

Windows, Dormer. See Dormer windows**Winds**

Wind as an earth sculptor. H. Lipschütz. il
Sci Am S 82:317 N 11 '16

Wine

Pomace wines; their composition and detec-
tion. J. R. Eoff, jr. J Ind & Eng Chem 8:
723-6 Ag '16

Process of wine chaptalization. Sci Am S 82:
99 Ag 12 '16

Winnipeg, Manitoba**Water supply**

Conduit construction. il Munic Eng 50:13-15 Ja
'16

Construction features of the Greater Winni-
peg water supply. J. H. Fuertes. il map W
Soc E J 20:752-75 N '15; Same. Eng & Contr
44:377-80; 45:140-2 N 10 '15; F 9 '16; Excerpt.
Concrete 8:235-6 My '16

New Winnipeg aqueduct cracks from founda-
tion settlement. Eng N 76:716-17 O 12 '16

Report on cause and repair of cracks in Win-
nipeg aqueduct. diag Eng & Contr 46:416-17
N 8 '16

Winnipeg aqueduct cracks can be repaired
within original cost estimate. diag Eng
Rec 74:476-7 O 14 '16

Winter construction

Winter work in the construction and repair of
dams and shore protections in the United
States improvement of the upper Mississippi
river. C. W. Durham. il map Eng & Contr
45:251-3 Mr 15 '16

See also Concrete construction in winter

Winter sports. See Skis and ski-running**Wire**

Power requirements for wire drawing; ab-
stract. K. B. Lewis. Am Soc M E J 38:93-4
Ja '16

Zinc wire. Sci Am S 81:394 Je 17 '16

See also Cables; Electric wire and wiring

Wire, Trolley. See Trolley wire**Wire gages and gaging**

Determining equivalent gage of stranded
cable. A. B. Goldstene. Elec W 68:524 S 9
'16

Wire rods

How to heat wire rod by continuous coil
method. R. V. Sawhill. il Iron Tr R 57:1082-6
D 2 '15

Wire rod prices at Pittsburgh for fifteen years.
Iron Age 97:5 Ja 6 '16

Wire rope

Bending stress in wire rope. Coal Age 10:
319, 441 Ag 19, S 9 '16

Hoisting-rope question. C. M. Rasmussen. Eng
& Min J 101:699 Ap 15 '16

Hoisting ropes. U S Bur Mines Bul 75:110-25
'15; Excerpts. Eng & Min J 100:926-7, 966
D 4-11 '15

How to lubricate wire rope. il Coal Age 10:
427 S 9 '16

How to splice wire rope. C. J. Fuetter. il Coal
Age 8:834 N 20 '15; Same. Eng & Min J 100:
1006 D 18 '15; Same. Power 43:63 Ja 11 '16

Wire rope: a factor in steel making. J. F.
Howe. Iron Tr R 57:1232-3+ D 23 '15

Wire rope and the coal mine. J. Steelman. il
diags Coal Age 9:1082-7 Je 24 '16

Wire-rope formulas. Coal Age 8:1075 D 25 '15

Wire rope lubrication. G. R. Rowland. Coal
Age 9:789-90 My 6 '16; Abstract. Am Soc
M E J 38:595 Jl '16

Wire-rope lubrication. il Eng & Min J 101:858
My 13 '16

See also Cables

Testing

Heavy wire rope tested at Bureau of stand-
ards. il Eng Rec 74:81-2 Jl 15 '16

Wire winding

Air-hose wire-winding tool. H. B. McDermid.
il Eng & Min J 101:14 Ja 1 '16

Wire-working machinery

Electrical manufacturing operations; fan
guards. C. L. Lucas. il Mach 22:741-3 My '16

Hand-operated wire bending fixtures. G. P.
Breitschmid. il diags Mach 22:515-16 F '16

Wire-working machinery—Continued

- Ornamental wire fence machine. *il* Iron Age 96:1524 D 30 '15
 Table for bending tie wires for concrete forms. W. D. Jones. *il* Eng & Contr 46:461 N 22 '16

Wireless telegraph

- Adjustable prism-shaped multiple spark-gap; abstract. B. Thieme. *Elec W* 66:1439 D 25 '15
 Discharge tube used as a wireless valve; abstract. G. W. White. *Elec W* 66:1269-70 D 4 '15
 Electrical constants of compound antennas. A. F. Puchstein. *Elec W* 67:147-8 Ja 15 '16
 Feeling through the fog by wireless. R. G. Skerrett. *il* Sci Am 114:180-1 F 12 '16
 Fountain pen receiver—a portable wireless receiving set. *il* diag Sci Am 115:246 S 9 '16
 High versus low antennae in radio telegraphy and telephony. E. Bennett. *Wis U Bul Eng S* 3:1-67 no 4 '16; Abstracts. *Elec R & W Elec'n* 69:887 N 18 '16; *Sci Am S* 82:320 N 11 '16
 Load dispatching by wireless on Pacific coast. L. T. Merwin. *il* *Elec W* 67:41-2 Ja 1 '16
 New electrolytic interrupter. C. A. Oldroyd. *diags Sci Am S* 82:60-1 J1 22 '16
 Operation of a non-synchronous rotating gap. A. S. Blatterman. *diags Elec W* 68:563-6 S 16 '16
 Quantitative measurements at Washington on the signals from the German radio stations at Nauen and Elivese. L. W. Austin. *diags J Fr Inst* 182:605-11 N '16
 Radio inspectors and their work. H. T. Wade. *il* *Sci Am* 113:536-7+ D 18 '15
 Radium and aërials. E. Leimer. *Sci Am S* 82:233 O 7 '16
 Recent advances in long distance radio-telegraphy. W. C. Ballard. *diags Sibley J* 30:103-5 D '15
 Recent improvements in radio communication; abstract. A. F. Van Dyck. *diags Elec W* 68:726-7 O 7 '16
 Refinements in the science and art of radio communication. J. L. Hogan, jr. *Elec W* 67:22-4 Ja 1 '16
 Relay for wireless telegraphy; abstract. E. Leimer. *diag Elec W* 67:1115-16 My 13 '16
 Resistance of radiotelegraphic antennas. L. W. Austin. *U S Bur Stand Bul* 12:465-8 F 3 '16
 Signaling range in radiotelegraphy. J. L. Hogan, jr. *Elec W* 66:1250-1 D 4 '15
 Strays in wireless telegraphy. *Sci Am* 114:145 F 5 '16
 Strays in wireless telegraphy. H. McIlvaine. *Sci Am* 114:553 My 27 '16
 Unit design in marine wireless telegraphy. J. A. White. *il* *Sci Am* 114:323+ Mr 25 '16
 Wireless telegraphy. F. Lowenstein. *diag Elec W* 68:379 Ag 19 '16
See also Electric waves; Wireless telegraph stations

Direction finder

- Radio direction finder invented by young American. *il* *Sci Am* 114:174-5 F 12 '16; *Elec W* 67:473 F 26 '16

Wireless telegraph for railroads

- Association of railway telegraph superintendents. 35th annual convention. *Ry Age* 60:1579 Jo 30 '16

Wireless telegraph in war

- Motor truck wireless station. *il* *Sci Am* 115:66 J1 15 '16
 Motorcycle radio stations as a factor in military operations. *il* *Sci Am* 114:219 F 26 '16
 Wireless for motorboats. *Sci Am S* 81:411 Je 24 '16

Wireless telegraph stations

- Design of Darien radio towers. C. A. Carlson. *il* *diags Eng N* 75:546-9 Mr 23 '16

Wireless telephone

- Limitations and possibilities of radio telephony. T. N. Vail. *Sci Am S* 81:155 Mr 4 '16
 Magnetic amplifier for radiotelephony. E. F. W. Alexanderson and S. P. Nixdorff. *il* *diags Gen Elec R* 19:215-22 Mr '16
 Man who heard Washington in Hawaii. *il* *Sci Am* 114:83+ Ja 15 '16
 Progress in radio telephony. J. L. Hogan, jr. *il* *diag Sci Am* 114:82-3 Ja 15 '16

- Progress of wireless telephony. *Mach* 22:732 Ap '16

- Simple wireless telephone set. *il* *Sci Am S* 81:36 Ja 15 '16

- Wireless achievements at Tufts college in Massachusetts. *il* *Elec R & W Elec'n* 68:672 Ap 15 '16

- Wireless fog signal for marine use. A. Marple. *il* *Elec R & W Elec'n* 69:306 Ag 12 '16

Wiring, Electric. See Electric wire and wiring**Wisconsin, Engineering society of. See Engineering society of Wisconsin****Wisconsin electrical association**

- 8th annual convention, Milwaukee, Mar. 16-17. *Elec R & W Elec'n* 68:534-5 Mr 25 '16
 8th annual convention, Milwaukee, Mar. 16-17. *Elec Ry J* 47:563, 599-603 Mr 18-25 '16

Wisconsin master plumbers' association

- 22d annual convention, Milwaukee, Jan. 18-19. *Dom Eng* 74:113-14 Ja 22 '16
 22d annual convention, Milwaukee, Jan. 18-19. *Metal Work* 85:169-70 Ja 28 '16

Wisconsin university

- How Wisconsin teaches the theory and principles of plumbing and sanitation. *Dom Eng* 76:378-9+ S 9 '16

Witwatersrand

- Cause of Rand earth tremors. A. C. Key. *Eng & Min J* 101:995-6 Je 3 '16

See also Gold mines and Mining—Transvaal; Water supply—Transvaal

Wolfram. See Tungsten**Wolframite**

- Wolframite and scheelite at Leadville, Colorado. R. S. Fitch and G. F. Loughlin. *Econ Geol* 11:30-6 Ja '16

Woman**Employment**

- Automobile factories should use more female labor. H. W. Allingham. *il* *Automobile* 35:816-18 N 9 '16
 Employment of women in Great Britain. *Am Soc M E J* 38:1044-5 D '16
 Employment of women on munitions of war. *il* *Engineer* 121:123 F 11 '16
 Employment of women on tramways in Great Britain. *Elec Ry J* 46:1136 D 4 '15
 Report of committee of the British association. *Engineer* 122:274-5 S 29 '16
 Shirt and collar industries: report on the cost of production in the United States. *U S Bur For & Dom Com misc ser* 36:136-63 '16
 Women as shell makers. *Engineer* 122:358-9 O 20 '16
 Women in workshops. *Engineer* 121:133-4 F 11 '16
 Women on munitions work. *Eng M* 51:118 Ap '16
 Women workers of France. M. Wells. *il* *Sci Am* 114:238-9 Mr 4 '16

Wood

- Creosoted wood block floors for railroad buildings. *il* *Ry Age* 59:1145-9 D 17 '15
 Hints for removing stains from wood. *Bldg Age* 38:45 J1 '16
 Properties of balsa wood; abstract. R. C. Carpenter. *Am Soc M E J* 38:590-1 J1 '16
 Timbers of the Philippines. *Sci Am S* 82:142-3 Ag 26 '16
 Use of native woods for interior finish. C. M. Price. *il* *Brickb* 24:217-22, 239-42, 285-9, 295-300 S-D '15
 Wooden horse—but what wood? B. Adams. *Am For* 22:552-3 S '16
 Woods of Hawaii; notes on the most important varieties, and their economic value. V. McCaughey. *il* *Sci Am S* 81:184 Mr 18 '16
See also Ash; Birch; Cedar; Cigar-box wood; Coniferae; Cypress; Douglas fir; Elm; Fir; Forests and forestry; Greenheart; Hickory; Lumber; Oak; Pine; Poles; Red gum; Redwood; Sawmills; Teak; Timber; Trees; Willow; Wood flour; Wood oils; Wood preservation; Wood pulp; Wood waste; Woodlots; Woodwork

Testing

- Eight tests on built-up timber columns. H. D. Dewell. *il* *diags Eng N* 75:324-6 F 17 '16

Wood—Testing—Continued

- Ground-wood pulp; with samples of papers. J. H. Thickens and G. C. McNaughton. il maps U S Agric Bul 343:1-151 '16
- Strength of burnettized timber to be studied. J. M. Barker. il Eng N 75:1084-5 Je 8 '16
- Strength tests of structural timbers treated by commercial wood-preserving processes. H. S. Betts and J. A. Newlin. U S Agric Bul 286:1-14 '15; Same cond. Ry R 58:277-9 F 19 '16
- Tests of Douglas fir bridge stringers to determine effect of creosote treatment on physical properties. H. B. MacFarland. Eng & Contr 45:427-30 My 10 '16; Excerpts. Ry Age 60:908-9 Ap 21 '16; Abstract. Eng Rec 73:479 Ap 8 '16

Wood, Fossil. See Trees, Fossil**Wood, Ignition of**

- Heat pipes in relation to wood construction. Metal Work 85:349 Mr 10 '16

Wood as fuel

- Fuel value of wood. Am For 22:688 N '16
- Residence heated eight years by wood furnace. plans Metal Work 85:185-6 F 4 '16

Wood ashes

- Potash from fir wood mill-waste. H. F. Zoller. J Ind & Eng Chem 8:105-8 F '16

Wood borers. See Borers (animals)**Wood distillation**

- By-products of the lumber industry. H. K. Benson. diags U S Bur For & Dom Com 110:9-32 '16
- Contributions of the chemist to the hardwood distillation industry. S. W. Katzenstein. J Ind & Eng Chem 7:940-2 N '15; Same. Sci Am S 81:10-11 Ja 1 '16
- Lignoceric acid from rotten oak wood. M. X. Sullivan. J Ind & Eng Chem 8:1027-8 N '16
- Pine needle oil industry. S. J. Record. il Sci Am 114:100-1 Ja 22 '16
- Sandalwood, its assay, yield of oil, and changes in the oil during distillation. C. H. Briggs. J Ind & Eng Chem 8:428-9 My '16
- Studies on the extraction of rosin from wood. R. C. Palmer and H. R. Boehmer. il J Ind & Eng Chem 8:695-701 Ag '16
- Temperature control in wood distillation. R. C. Palmer. J Ind & Eng Chem 8:283-4 Mr '16
- Temperature control in wood distillation plants. R. B. Goetschius. J Ind & Eng Chem 8:196 F '16
- Timber owners make stumps pay. il Eng Rec 73:764 Je 10 '16
- Wood engraving**
- Father of the new wood-engraving—Alexander Wilson Drake. S. H. Horgan. Inland Ptr 56:828-9 Mr '16
- Master wood engraver—Timothy Cole. N: J. Quirk. Inland Ptr 56:780-1 Mr '16
- Wood-engraving growing in favor. il Inland Ptr 57:91-2 Ap '16

Wood finishing

- Electric furniture rubber. Sci Am 113:517 D 11 '15
- Finishing wood surfaces; a process patented by two inventors of Nottingham, England. Sci Am S 81:170 Mr 11 '16
- Interior natural wood finish for automobile bodies. M. C. Hillick. Horseless Age 38:306-7+ N 1 '16
- Side lights on wood finishing. Bldg Age 38:29-30 N '16
- See also Stains and staining; Varnish and varnishing

Wood flour

- Use of wood flour. Am Ind 16:36 My '16
- Wood flour and the manufacture of dynamite and linoleum. Sci Am 115:170 Ag 19 '16
- Wood flour; manufacture and uses. F. W. Kressmann. Met & Chem Eng 14:372-4 Ap 1 '16; Same. Sci Am S 82:229 O 7 '16

Wood lots. See Woodlots**Wood oil, Chinese. See Chinese wood oil****Wood oils**

- Miscellaneous wood oils for flotation. R. C. Palmer, G. L. Allen and O. C. Ralston. Am Inst Min E Bul 116:1387-96 Ag '16; Same cond. Eng & Min J 102:311-13 Ag 12 '16; Abstract. Met & Chem Eng 15:488-9 O 15 '16

Wood pavements. See Pavements, Wood**Wood pipes. See Pipes, Wood****Wood preservation**

- American wood preservers' association 12th annual convention, Chicago, Jan. 18-20. Elec Ry J 47:166-7 Ja 22 '16; Ry R 58:125-6 Ja 22 '16
- American wood preservers' convention at Chicago, Jan. 18-20; abstracts of papers and reports. Ry Age 60:122-9 Ja 21 '16
- Artificial seasoning of timber. O. Craig. Sci Am S 81:395 Je 17 '16
- Boston Elevated completes pressure wood preserving plant. E. W. Bright. il diag plans Elec Ry J 48:1065-8 N 18 '16
- Caring for and handling creosoted timber; report of committee. Ry R 59:585-6 O 28 '16; Ry Age 61:748-9 O 27 '16
- Coal industry's interest in timber creosoting. J. C. Taylor. Coal Age 10:148-9 Jl 22 '16
- Creosoted piling and poles. F. W. Cherrington. il Ry R 58:165-7 Ja 29 '16; Excerpts. Eng Rec 73:105 Ja 22 '16
- Creosoting Douglas fir. O. P. M. Goss. Ry R 57:833 D 25 '15
- Creosoting effective for fence posts. Eng Rec 74:414-15 S 30 '16
- Creosoting plant at Orrville, Ohio, has vertical cylinders for wood blocks. E. A. Sterling. il Eng Rec 73:283-4 F 26 '16; Same. Eng N 75:454-6 Mr 9 '16
- Creosoting wood blocks in vertical tanks. W. F. Schaphorst. il Eng & Contr 46:206 S 6 '16
- Durability of creosoted block pavements increased by modern methods of treatment. F. W. Cherrington. il Munic Eng 49:230-1 D '15
- Essentials in timber preservation work. J. W. Kendrick. Ry R 58:127-8 Ja 22 '16
- Marine borers from wood preserver's standpoint. L. F. Shackell. Ry Age 60:508-10 Mr 17 '16
- Method and cost of treating sheet piles exposed to sea water with avenarius carbolineum. W. D. Jones. il Eng & Contr 46:32-3 Jl 26 '16
- New process for treating wood patented by the American wood encysting company. il Eng Rec 73:373-4 Mr 11 '16
- New tie-treating plant on the Northwestern railway. L. J. Putnam. il diags Eng N 75:729-33 Ap 20 '16
- Oil specification for creosoted wood block. H. von Schrenk. il Eng N 75:204-6 F 3 '16; Abstract. Munic Eng 49:233-4 D '15
- Paving blocks treated with water-gas tar. H. von Schrenk. Eng N 75:669-70 Ap 6 '16
- Perforation of fir ties before treatment. il Ry R 59:288-9 Ag 26 '16
- Pole-treating plant of Lindsley company. il Elec R & W Elec'n 69:344-5 Ag 19 '16
- Poles and pole-line construction. G. L. Lindsley. Elec R & W Elec'n 69:815-16 N 4 '16
- Preservative treatment of farm timbers. G. M. Hunt. il diags U S Agric Farmers' Bul 744:1-32 '16
- Proper oil for creosoting wood blocks for paving. P. C. Reilly. il Ry R 58:139-46 Ja 22 '16
- Results obtained from the preservative treatment of telephone poles. F. L. Rhodes and R. F. Hosford. bibliog il Am Inst E E Pro 34:2343-87 O '15; Abstracts. Elec Ry J 46:879 O 23 '15; Elec W 66:1031 N 6 '15; Discussion. Am Inst E E Pro 35:497-503 Ap '16
- Simple method of timber preservation. L. B. Reifsneider. Eng & Min J 102:96-7 Jl 8 '16; Same. Coal Age 10:432 S 9 '16
- \$600,000 Washington irrigation project; preservation of wood pipe. J. C. Stevens. il diags map Eng Rec 74:641-2 N 25 '16
- Specifications for treating wood with creosote. K. Redman. Eng N 75:607-8 Mr 30 '16
- Strength of burnettized timber to be studied. J. M. Barker. il Eng N 75:1084-5 Je 8 '16
- Strength tests of structural timbers treated by commercial wood-preserving processes. H. S. Betts and J. A. Newlin. U S Agric Bul 286:1-14 '15; Same cond. Ry R 58:277-9 F 19 '16

Wood preservation—Continued

- Tests of Douglas fir bridge stringers to determine effect of creosote treatment on physical properties. H. B. MacFarland. Eng & Contr 45:427-30 My 10 '16; Excerpts. Ry Age 60:908-9 Ap 21 '16; Abstract. Eng Rec 73:479 Ap 8 '16
- Treated wood block for factory and shop flooring. C. H. Teesdale. Ry R 58:148-9 Ja 22 '16; Same cond. Ry Age 60:127-8 Ja 21 '16; Summary. Eng Rec 73:114-15 Ja 22 '16
- Water-gas tar for treating wood-paving blocks. J. S. Miller, jr. Eng N 75:433 Mr 2 '16
- Western red cedar association issues standard treatment specifications. Elec Ry J 48:400-1 S 2 '16
- Wood blocks for street paving; their treatment and handling. il diag Munic Eng 50:183-4 My '16
- Wood preservation statistics. Ry Age 60:1229 Je 9 '16
- Wood preserving department. O. P. M. Goss. See monthly numbers of American forestry
- Wood-preserving statistics. Eng N 75:869 My 4 '16

See also Creosote

Wood pulp

- By-products of the lumber industry. H. K. Benson. il diags U S Bur For & Dom Com 110:40-56 '16
- Ground-wood pulp; with samples of papers. J. H. Thickens and G. C. McNaughton. il maps U S Agric Bul 343:1-151 '16
- Master minds of type and press. J. S. Ritenour. Inland Ptr 57:517-18 Jl '16
- New wood pulp process. Sci Am 114:207 F 19 '16
- Papermaking and its machinery. il diags Engineer 120:615-18 D 31 '15
- Present annual production of wood-pulp. J. S. Ritenour. Inland Ptr 57:659 Ag '16
- Wood waste and other pulpwoods used in 1914 by United States mills. H. E. Surface. Met & Chem Eng 14:701-3 Je 15 '16

See also Paper

Wood using industries

- Lumber markets of the east coast of South America. R. E. Simmons. il U S Bur For & Dom Com 112:1-121 '16

Wood waste

- Another angle on the wood-waste problem. Elec R & W Elec'n 68:463-4 Mr 11 '16
- By-products of the lumber industry. H. K. Benson. il diags U S Bur For & Dom Com 110:1-68 '16; Excerpt (Minor products of wood). Sci Am S 82:8-9 Jl 1 '16
- Conditions under which Oregon company burns wood. il Elec W 68:170-3 Jl 22 '16
- Disposal of refuse from woodworking establishments. W. S. Taussig. Elec R & W Elec'n 68:1167 Je 24 '16
- Ethyl alcohol from wood. F. W. Kressmann. Met & Chem Eng 15:78-82 Jl 15 '16
- Evaporation test with shavings. H. Kilday. diag Power 43:924 Je 27 '16
- Large mill-refuse burner built of concrete and brick. N. J. Blagen. il diags Eng N 76:588-9 S 28 '16
- Sawmill waste in suction producer plant. G. S. Wilson. il diag Power 43:466-8 Ap 4 '16
- Use of wood refuse from lumber mill and exhaust steam as by-products. il Elec W 68:867 O 28 '16
- Utilization of wood waste. A. D. Little. J Ind & Eng Chem 8:102-5 F '16; Same. Met & Chem Eng 14:133-5 F 1 '16
- Warring on waste; diverting wood from the waste pile. G. Dorrance. il Factory 17:129-32 Ag '16
- Waste pine wood utilization; some of the products obtained and processes employed. J. E. Teeple. Sci Am S 51:27 Ja 8 '16
- Wood waste. J. G. Dorrance. il Sci Am 114:382-3+, 426-7 Ap 8, 22 '16
- Wood-waste problem. F. A. Coffin. Elec R & W Elec'n 68:772 Ap 29 '16
- See also* Bark; Hopvines; Wood distillation; Wood flour

Woodlots

- Measuring and marketing woodlot products. W. R. Mattoon and W. B. Barrows. il diags U S Agric Farmers' Bul 715:1-48 '16

- Woodlot and the Smith-Lever bill. Am For 22:51 Ja '16

Woodwork

- Commercial uses of cypress. il Am For 22:581-5 O '16
- Commercial uses of Douglas fir. J. S. Williams. il Am For 22:69-75 F '16
- Commercial uses of shortleaf pine. il Am For 22:517-20 S '16
- Commercial uses of the white elm. il Am For 22:262-7 My '16
- Commercial uses of white ash. il Am For 21:1983-9 D '15
- Commercial uses of white oak. il Am For 22:6-11 Ja '16
- Selecting woods for interior finish. J. S. Edmund. il Bldg Age 38:33-4 Ag '16
- Use of native woods for interior finish. C. M. Price. il Brickb 24:217-22, 239-42, 285-9, 295-300 S-D '15
- Veneer trimming made simple by use of electric motor. il Sci Am 114:430 Ap 22 '16
- See also* Cabinet work; Stains and staining; Wood finishing; Woodworking machinery; Woodworking shops

Woodworking machinery

- Chain and hollow chisel mortising machine. il Engineer 121:66-7 Ja 21 '16
- Safety in planing mills and furniture factories. il Am Ind 17:supl-4 N '16
- See also* Lathes; Planing machines; Sawmills; Saws

Woodworking shops

- Finding costs in a wood-working factory. F. H. LeMont. il Factory 17:531-5 N '16
- How the question of wood refuse was solved in a Louisville plant. Elec R & W Elec'n 68:194-5 Ja 29 '16
- Practical advantages of motor drive in the woodworking shop. il Elec W 67:939 Ap 22 '16
- Why a wood-working and wood-preserving plant finds central-station drive profitable. il Elec W 67:209-10 Ja 22 '16
- See also* Chair factories

Wool

- Atmospheric humidity and strength of woolen fabrics. K. B. Lamb. Textile World 51:421 Ja 8 '16
- Australian classing of domestic wools. J. E. Cosgriff. il Textile World 51:513+ Ja 15 '16
- Wool preparation, mixing and conditioning. Textile World 51:2245+ My 6 '16
- Wool supply and its effect on yarn for knitting. W. Davis. il Textile World 51:2845+ Je 17 '16
- See also* Dyes and dyeing—Wool; Serge; Sheep; Textile industry and fabrics; Wool trade; Woolen and worsted manufacture; Worsted

Shrinkage

- Determining the shrinkage of woolen fabrics. K. B. Lamb. Textile World 51:33+ D 4 '15
- Finishing wool underwear. Textile World 51:2945+ Je 24 '16

Wool carbonizing

- European methods of carbonizing wool stock. R. Dantzer. il diags plan Textile World 51:4725+ N 4 '16

Wool carding

- Horizontal wool card. il Textile World 51:3459+ Ag 5 '16
- Kinks on wool carding. Textile World 51:423+ Ja 8 '16
- New arrangement for wool carding. diag Textile World 51:419+ Ja 8 '16
- Preparing stock for carding. Textile World 51:33+ D 4 '15
- Woolen carding. Textile World 51:614, 630 Ja 15 '16

Wool combing

- Combing fine and coarse wools. Textile World 51:4457 O 14 '16
- Wool combing and variation in pin setting. Textile World 51:4455+ O 14 '16

Wool fat

- Centrifugal recovery of wool fat. E. E. Ayres. jr. il Textile World 51:1869+ Ap 15 '16

Wool finishing

- Finishing all-wool and union cassimeres. Textile World 51:627 Ja 15 '16
- Finishing sulphur bleached wools and worsteds. il Textile World 51:287 D 25 '15

Wool finishing—Continued

Finishing wool hosiery. Textile World 51:4857 N 11 '16

Finishing wool underwear. Textile World 51:2945+ Je 24 '16

Purification of the wastes from the finishing of woolen goods. H. R. Crohurst and A. D. Weston. Eng & Contr 45:560-7 Je 21 '16

Successful methods of finishing wool velours. il Textile World 51:4633+ O 28 '16

See also Fuller's earth

Wool scouring

Amount of water necessary to scour wool. Textile World 51:2247 My 6 '16

Carbonizing gummy wool. Textile World 51:3817 S 2 '16

Centrifugal recovery of wool fat. E. E. Ayres, jr. il Textile World 51:1869+ Ap 15 '16

Feeding wool scouring machines. diag Textile World 51:24+ D 4 '15

Klauber-Weldon scouring machine. il Textile World 51:762 Ja 15 '16

Physical action in wool-scouring. J. Dumville and S. Kershaw. Textile World 51:421+, 1086 Ja 8, F 12 '16

Scouring woolen half hose. Textile World 51:831+ Ja 22 '16

Wool trade

English wool and textiles in 1915. Textile World 51:641, 645, 647 Ja 15 '16

Italian wool industry. R. Sansone. Textile World 51:650 Ja 15 '16

Late improvement in wool manufacturing situation. Textile World 51:599+ Ja 15 '16

Observations on the woolen market. R. T. Francis. Textile World 51:2558+ My 27 '16

Phenomenal year evident in world's wool markets. Textile World 51:632+ Ja 15 '16

Philadelphia wool trade; plan to concentrate offices and warehouses. Textile World 51:967+ F 5 '16

Textile alliance and wool imports. Textile World 51:510+ Ja 15 '16

Wool and the war's demands. il Textile World 51:508-9 Ja 15 '16

Wool prices from 1906 to 1915, inclusive; graphic chart. Textile World 51:637 Ja 15 '16

Woolen and worsted goods census. Textile World 51:3634 Ag 19 '16

Wool washing. See Wool scouring**Wool waste**

Preventable waste in wool carding and spinning. Textile World 51:3545 Ag 12 '16

Recovering potash salts from wool. I. A. Hunter. Textile World 51:33+ Mr 11 '16

Recovery of wool fat. E. E. Ayres, jr. Met & Chem Eng 14:317-18 Mr 15 '16

Woolen and worsted machinery

Backwasher and backwash dryer. il Textile World 51:5025 N 25 '16

European methods of carbonizing wool stock. R. Dantzer. il diag plan Textile World 51:4725+ N 4 '16

Importance of guides. il Textile World 51:1637+ Ap 1 '16

Machine to adapt length of staple to carding. J. F. Smith. Textile World 51:279 D 25 '15

New interlocking ring for wool scouring rolls. il Textile World 51:2767 Je 10 '16

See also Looms

Woolen and worsted manufacture

Affinity of fibers in mixtures. Textile World 51:627+ Ja 15 '16

Constructions for plain and fancy white cloths. il Textile World 51:1071 F 12 '16

Control of strains in fiber, yarn and cloth. il Textile World 51:3813 S 2 '16

Dressing woolen and worsted warps. Textile World 51:2248 My 6 '16

Effects of fiber and twist on worsted goods. R. Beaumont. il Textile World 51:2761 Je 10 '16

Handle of imported goods. Textile World 51:1635+ Ap 1 '16

Manufacturing manipulated woollens. Textile World 51:1383 Mr 11 '16

Methods of treating burry wools. Textile World 51:3025+ J1 1 '16

Saving time and waste in making mixture shades. diag Textile World 51:1071+ F 12 '16

Using long wools for short in army goods. il Textile World 51:3545+ Ag 12 '16

See also Bedford cord; Bolivia cloth; Fulling; Textile industry and fabrics; Textile mills; Wool; Wool finishing; Wool waste

Accounting

Handling accounts in the wool department. R. H. Butz. Textile World 51:4729+ N 4 '16

Woolen and worsted overseers. National association of. See National association of woolen and worsted overseers

Woolen mills. See Textile mills

Woolen underwear manufacturers association. New body formed at Albany meeting is subsidiary of national association. Textile World 51:3275+ J1 22 '16

Woolworth building, New York

Flood lighting the world's tallest building. H. H. Magdsick. il Elec W 68:412-14 Ag 26 '16

Word division

Division of words at the ends of lines. F. H. Teall. Inland Ptr 57:634-5 Ag '16

Words. See Technical terms; Word division

Words, Compound. See Compound words

Workbenches

Portable collapsible workbench. il Bldg Age 38:39-40 Je '16

Working day. See Hours of labor

Working women. See Woman—Employment

Workingmen's insurance. See Insurance, Industrial

Workmen's compensation

Attitude of the employer towards accident prevention and workmen's compensation; with discussion. W. H. Cameron. Am Soc M E J 38:287-9 Ap '16

Compensation and vocational disease. Iron Age 97:1398-9 Je 8 '16

Compensation insurance. G. W. Hill. Dom Eng 74:74-5 Ja 15 '16

Compensation insurance an item of overhead expense. G. W. Hill. Dom Eng 74:105 Ja 22 '16

Eliminating waste in insurance. Am Ind 17:36-7 N '16

How mine safety is increased by compensation laws. H. M. Wilson. Coal Age 10:672-3 O 21 '16

Ohio's compensation act. R. C. Green. Elec Ry J 48:868-70; Discussion. L. J. Tynan. 870-2 O 21 '16

Practical workmen's compensation questions. L. S. Hoffman. Elec Ry J 46:1210-12 D 18 '15

Typhoid an accident under compensation law. Eng N 75:426 Mr 2 '16

Typhoid fever from drinking water is accident; decision by Judge Ross. Eng N 76:442 S 7 '16; Same cond. Am Gas Light J 105:174 S 11 '16

Workmen's compensation in Pennsylvania. H. A. Mackey. Elec Ry J 46:1213 D 18 '15

Workmen's compensation law. Coal Age 9:94 Ja 8 '16

Workmen's compensation law. S. C. Reynolds. Coal Age 9:262-4 F 5 '16

Workmen's compensation law. W. E. Joyce. Coal Age 9:386-7 F 26 '16

Workmen's compensation laws of 1914 and 1915. Eng & Min J 101:88 Ja 8 '16

Workmen's compensation legislation of 1914 and 1915. Ry R 57:829-30 D 25 '15

Wyoming's compensation law. Coal Age 9:471 Mr 11 '16

See also Malingering

World's fairs. See San Francisco—Panama Pacific international exposition, 1915

Worm gearing. See Gearing, Worm

Worms

Production of light by animals. U. Dahlgren. il diag J Fr Inst 181:659-96 My '16

Worsted

Origin of worsted. J. A. Hunter. Textile World 51:614, 619 Ja 15 '16

Worsted yarn prices from 1906 to 1915, inclusive; graphic chart. Textile World 51:621 Ja 15 '16

See also Textile industry and fabrics; Wool; Woolen and worsted machinery; Woolen and worsted manufacture; Yarn

Wounds

- Bacteriology of wounds in war. Sci Am S 81: 58-9 Ja 22 '16
 Galalith for insulating wounded nerves. Sci Am S 82:21 Jl 8 '16
 Garlic juice in wound treatment. Sci Am S 81:259 Ap 22 '16
 Treatment of wounds. T. C. Witherspoon. Eng & Min J 101:225 Ja 29 '16
See also Antiseptics; Surgery

Wrecking

- Dynamite, oxy-acetylene, fire and cranes required to wreck concrete bins. il Eng Rec 73:515-16 Ap 15 '16
 Dynamite proves effective in wrecking of Panama-Pacific exposition. il Eng Rec 74:203-4 Ag 12 '16
 Half of long steel viaduct at Cleveland wrecked in seven days. diag Eng Rec 73: 326-7 Mr 4 '16
 Methods employed in wrecking reinforced concrete buildings. E. Schick. Concrete 8:207-9 My '16
 Tearing down an old concrete ice factory. A. G. Hoadley. il plan Eng N 76:729-31 O 19 '16
 Wrecking concrete structure with explosives. P. W. Scharros. Eng & Contr 45:293-4 Mr 29 '16
 Wrecking heavy machinery by cutting torches. il Eng N 76:1040-1 N 30 '16
See also Bridges—Removal; Salvage

Wrecking cars

- Auxiliary car for wrecking crane on Canadian Northern. diags Ry Mech Eng 90:21 Ja '16
 Bucyrus wrecking crane. il Ry R 58:615-16 Ap 29 '16
 Equipment makes the wreck car. il Elec Ry J 47:1196-7 Je 24 '16

Wrenches

- Adjustable angle wrench. il Metal Ind n s 14: 36 Ja '16
 Conduit and pipe wrenches. il Elec R & W Elec'n 69:212-13 Jl 29 '16
 Determining the proper length of track wrenches. E. Stimson. Ry Age 60:317-18 F 18 '16
 La Rock pipe wrench. diags Power 44:242-3 Ag 15 '16
 Powerful pipe wrench dismantles large-diameter pipe line. J. Ryan and E. C. Entler. diags Eng Rec 74:601 N 11 '16

Writing

- Pen that permits of writing with the mouth. A. Gradenwitz. il Sci Am 114:533+ My 20 '16
See also Ciphers; Lettering; Punctuation

Writing machine, Phonographic. *See* Phonographic writing machine**Wrought iron**

- Influence of temperature and mechanical working in hydraulic forging on the physical properties of wrought iron and steel; abstract. O. Fuchs. Am Soc M E J 38:89-90 Ja '16
 Iron carburization by blast-furnace gas. J. E. Stead. diags Iron Age 98:816-17 O 12 '16; Same cond. Engineer 122:404 N 3 '16
 Relation of slag to rust resistance of wrought iron. il Iron Tr R 58:1367 Je 22 '16
 Slag and the corrosion of wrought iron. il Iron Age 97:1445 Je 15 '16
 Steel in wrought-iron pipe. Iron Age 97:1132-3 My 11 '16; Iron Tr R 58:1052 My 11 '16; Am Gas Light J 104:381 Je 12 '16; Eng Rec 74: 110 Jl 22 '16; Eng & Min J 102:304 Ag 12 '16
See also Ironwork

X**X ray photography.** *See* Radiography**X rays**

- Application of X-rays to metallurgy. il Met & Chem Eng 14:345 Mr 15 '16
 Curious electrical experiments. C. Mayfield. Sci Am S 82:248 O 14 '16
 Electricity as a friend of animals. il Elec R & W Elec'n 68:502 Mr 18 '16

Emission quanta of characteristic X-rays; abstract. D: L. Webster. Elec W 68:284 Ag 5 '16

Genesis and absorption of X-rays. J. J. Thomson. Sci Am S 82:135 Ag 26 '16
 Law of absorption of X-rays at high frequencies; abstract. A. W. Hull and M. Rice. J Fr Inst 182:535 O '16

Lilienfeld Roentgen-ray tube; abstract. F. J. Koch. diag Elec W 68:487 S 2 '16
 Lilienfeld Roentgen tube. il diag Sci Am S 82: 109 Ag 12 '16

Locating bullets by X-ray; abstract. Elec W 67:1429 Je 17 '16

Locating bullets in human bodies. il Sci Am S 81:373 Je 10 '16

Making of X-ray tubes in war time. J. Boyer. il Sci Am 114:96+ Ja 22 '16

Portable X-ray power plant. il diag Elec W 67:449-50 F 19 '16

Production and utilization of Roentgen rays. J. S. Shearer. il diags Sibley J 30:119-23 Ja '16

Radiographic unit for dentists. il Elec W 66: 1387 D 18 '15

Röntgen-ray spectra. A. W. Hull. J Fr Inst 181:423-4 Mr '16

Roentgen rays and crystal structure. diag Met & Chem Eng 15:35-8 Jl 1 '16; Same. Sci Am S 82:354-5 D 2 '16

Safety Roentgen-tube. L. Zehnder. diag Sci Am S 80:389 D 18 '15

Scientific annihilation of the tobacco beetle. R. G. Skerrett. Sci Am 115:319 O 7 '16

Use of X-rays with intervals of red illumination. J. Boyer. il Sci Am 114:195 F 19 '16; Same cond. J Fr Inst 181:657-8 My '16

X-ray spectrum of tungsten. A. W. Hull. il diags Gen Elec R 19:603-10 Jl '16; Same. Sci Am S 82:308-10 N 11 '16

X-rays and crystal structure, with special reference to certain metals. W. H. Bragg. Engineer 121:424 My 19 '16; Same. Sci Am S 82:153 S 2 '16; Same. Met & Chem Eng 14:694-5 Je 15 '16

X-rays and the theory of radiation. Sci Am S 82:80 Jl 29 '16

See also Radiography

Xylose tetracetates

Isomeric tetracetates of xylose, and observations regarding the acetates of melibiose, trehalose and sucrose. C. S. Hudson and J. M. Johnson. Am Chem Soc J 37:2748-53 D '15

Y**Yachts and yachting**

- Last word in steam yachts. il Sci Am 115: 303+ S 30 '16
 New steam yacht Winchester. il Int Marine Eng 21:329-30 Jl '16
See also Sails

Yale club. *See* New York (city)—Clubs**Yale university**

- Yale bowl. T: C. Atwood. il diags plan Boston Soc C E J 3:231-58 Je '16; Excerpts. Eng & Contr 46:52-3 Jl 19 '16

Yarn

- Application of cork to the drawing and spinning of worsted, woolen and cotton yarns. J. H. Pullman. il Textile World 51:3819 S 2 '16

Causes of uneven yarns. Textile World 51: 201+ D 18 '15

Doubling and twisting ply and novelty yarns. Textile World 51:3289+ Jl 22 '16

How to remember the strength of yarn. Textile World 51:4533 O 21 '16

Relieving tension on wound yarn. diag Textile World 51:1645 Ap 1 '16

Uneven yarn in knitting. Textile World 51:27+ D 4 '15

Use of feathers in novelty yarns. il Textile World 51:1383+ Mr 11 '16

Use of feathers in yarns and cloths. il Textile World 51:2763 Je 10 '16

Wool supply and its effect on yarn for knitting. W: Davis. il Textile World 51:2845+ Je 17 '16

Yarn—Continued

Worsted and cotton counts in union yarns. F. Pickles. *Textile World* 51:3991+ S 16 '16

See also Cotton yarn; Flax; Silk; Textile industry and fabrics; Twine; Wool; Worsted

Testing

Single strand yarn testers. *il Textile World* 51:3651 Ag 19 '16

Yeast

Buttons as a by-product of beer. *Sci Am* 115: 423 N 4 '16

Deriving fat from yeast. *Sci Am* 114:101 Ja 22 '16

Yellow light. See Light, Colored

Yellow-pine. See Pine

Yellowstone national park

Description. M. Daniels. *il Am For* 22:458-63 Ag '16

Yosemite national park

Description. M. Daniels. *il Am For* 22:345-52 Je '16

Yosemite park improvements. *Am For* 21:1127 D '15

Yosemite power company

Hearing on Yosemite power project. *Elec W* 67:361 F 12 '16

Young men's Christian association

Adjuncts to efficiency in coal mining. L. Willard. *il Coal Age* 9:719-21 Ap 22 '16

Developing the human side in industry. F. H. Rindge, Jr. *Iron Age* 97:1264-5 My 25 '16

Extensions of Y. M. C. A. work in mining villages. C. R. Towson. *il Coal Age* 9:342-3 F 19 '16

Historic event at Cleveland station. W. W. Adair. *Ry Age* 60:1079 My 19 '16

How to encourage thrift among employees. W. N. Northcott. *il Ry Age* 60:874-9 Ap 21 '16

Teaching the art of chemical lead burning in the West Side Y. M. C. A.; New York. *il Metal Work* 85:673-5 My 19 '16

Young men's Christian association buildings

Young men's Christian association buildings in and around New York. *il plans Arch & Bldg* 48:55-64, pl 18-21 Ap '16

Young men's Christian association colleges

Y. M. C. A. college in Chicago. P. B. Wight. *il plans Arch Rec* 39:395-418 My '16

Youngstown iron & steel co.

Open hearths at Youngstown. R. V. Sawhill. *il diag plans Iron Tr R* 58:427-34 F 24 '16

Youth's companion building, Boston

Electrical features of a publishing plant. *il Elec R & W Elec'n* 68:632-3 Ap 8 '16

Yttrium

Purification and atomic weight of yttrium. B. S. Hopkins and C. W. Balke. *Am Chem Soc J* 38:2332-47 N '16

Separation of erbium from yttrium. P. S. Willand and C. James. *Am Chem Soc J* 38: 1198-1202 Je '16

Separation of yttrium from the yttrium earths. J. P. Bonardi and C. James. *Am Chem Soc J* 37:2642-5 D '15

Yukon gold company

Dredging and hydraulicking in 1915 by the Yukon gold co. O. B. Perry. *Eng & Min J* 101: 550-1 Mr 25 '16

Z**Zacaton**

Zacaton, a new paper-making material. *Sci Am* 114:76 Ja 15 '16

Zeolite

Water softening by filtration through artificial zeolite; with discussion. D. D. Jackson. *il Am Water Works Assn J* 3:423-33 Je '16

Zeppelins. See Airships

Zinc

Analysis and assay of zinc retort-residue. *Met & Chem Eng* 14:200-1 F 15 '16

Cadmium in spelter. W. R. Ingalls. *Metal Ind n s* 14:429-30 O '16

Cadmium myth? *Eng & Min J* 102:561 S 23 '16

Cadmium myth? G. C. Stone. *il Eng & Min J* 102:909-10 N 18 '16

Chemistry in the brass foundry. E. P. Later. *Foundry* 44:364-6 S '16

Crystal twinning by direct strain. C. A. Edwards. *il diag Iron Tr R* 58:341-5 F 10 '16; *Abstract. Am Soc M E J* 38:264-5 Mr '16

Effect of sea water on zinc. *Metal Work* 86: 469 O 13 '16

Facts about zinc and the supply. W. A. Cook. *Metal Work* 85:821-2, 848-9 Je 16-23 '16

Future of zinc. E. A. Smith. *Iron Age* 98:1221 N 30 '16

Influence of the war upon electric wiring practice in Germany. *Elec W* 67:984-5 Ap 29 '16

Making slush castings. *Mach* 22:378 Ja '16

Precautions when using copper substitutes. *Elec W* 68:22 Jl 1 '16

Proposed quick analytical method for determining the zinc in retort residues or electric zinc furnace slags. W. M. Johnson. *diag Met & Chem Eng* 14:395 Ap 1 '16

Revision of the atomic weight of zinc; the electrolytic determination of zinc in zinc bromide. G. P. Baxter and M. R. Grose. *Am Chem Soc J* 38:868-73 Ap '16

Sampling of spelter. *Eng & Min J* 102:108, 358, 432 Jl 8, Ag 19, S 2 '16

Spelter impurity in slush castings. G. Rigg and H. C. Morse. *il diag Foundry* 43:494-500 D '15

Spelter; its grades and uses. G. C. Stone. *Iron Age* 98:86 Jl 13 '16; *Same. Eng & Min J* 102:331-2 Ag 19 '16; *Same. Foundry* 44:326 Ag '16; *Same. Metal Ind n s* 14:335 Ag '16; *Same. Metal Work* 86:413 S 29 '16

See also Brass; Galvanizing; Zinc metallurgy; Zinc works

Zinc carbonate

Calcination of zinc carbonate. W. P. Simpson. *diag Met & Chem Eng* 14:181-3 F 15 '16

Zinc chloride

Use of zinc chloride. W. F. Goltra. *Elec Ry J* 47:166 Ja 22 '16

Zinc dust

Electrolytic zinc dust. H. J. Morgan and O. C. Ralston. *Met & Chem Eng* 15:465-8 O 15 '16; *Excerpts. Iron Age* 98:1047 N 2 '16

Industry that has grown to maturity within the last two years. J. R. Spears. *Sci Am* 115:158 Ag 12 '16

Zinc-dust precipitation tests. N. Herz. *Am Inst Min E Bul* 104:1507-13 Ag '15; *Abstract. Met & Chem Eng* 13:973-4 D 15 '15; *Discussion. Am Inst Min E Bul* 110:513-14 F '16

Zinc industry and trade

Appraisalment of imported zinc ore. A. J. Peters. *Eng & Min J* 101:1086 Je 17 '16

Exports of zinc in 1916 exceed records. *Metal Work* 86:620 N 17 '16

Foreign trade in lead and zinc. *Eng & Min J* 102:353, 800 Ag 19, O 28 '16

Great industries in Belgium before and during the war. H. Hubert. *Engineer* 121:123-4 F 11 '16

Refined spelter. *Eng & Min J* 102:880 N 11 '16

Smelting and selling Australia's base metals. Mahon. *Eng & Min J* 101:1120-1 Je 24 '16

Spelter statistics for 1915. W. R. Ingalls. *Eng & Min J* 101:606-11 Ap 1 '16

Spelter statistics, 1912-1916, by six-month periods: tabulation. *Met & Chem Eng* 15:562 N 15 '16

Zinc smelting in Great Britain. *Eng & Min J* 101:743 Ap 22 '16

Zinc statistics. *map Eng & Min J* 101:61-6 Ja 8 '16

Zinc metallurgy

Anacoda begins production of electrolytic zinc. *Eng & Min J* 102:587 S 30 '16

Bisulphite process. *Eng & Min J* 102:895-8 N 18 '16

Comments and speculations on the metallurgy of zinc. W. R. Ingalls. *diag Eng & Min J* 102:621-4 O 7 '16

Electric zinc distilling furnace, patent by J. Thomson. *Met & Chem Eng* 15:658 D 1 '16

Electric zinc furnace, patented by A. Helfenstein. *diag Met & Chem Eng* 14:341-2 Mr 15 '16

Electrolytic zinc. *Eng M* 50:933 Mr '16

Electrolytic zinc. D. A. Lyon. *Met & Chem Eng* 14:176 F 15 '16

Zinc metallurgy—Continued

- Electrolytic zinc. W. R. Ingalls. Eng & Min J 101:425-8 Mr 4 '16; Same abr. Met & Chem Eng 14:264-5 Mr 1 '16
- Electrolytic zinc at Bully Hill, Cal. C. A. Hansen. il Met & Chem Eng 14:120-2 F 1 '16
- Electrolytic zinc production. Eng & Min J 101:25-6 Ja 1 '16
- Electrothermic zinc smelting. H. W. Hixon. Eng & Min J 101:1080-1 Je 17 '16
- Empire zinc mill at Hanover, N. M. il Eng & Min J 102:677-8 O 7 '16
- Engle furnace for redistilling spelter. R. H. Engle. diag Eng & Min J 102:213-15 JI 29 '16
- Extraction of zinc from its ores by means of a solution of SO₂; patented by H. T. Durant. Met & Chem Eng 14:666 Je 1 '16
- Flotation experiments on a Joplin tailing; with discussion. W. A. Whitaker and others. tables Met & Chem Eng 15:131-7 Ag 1 '16
- Hydrometallurgy of zinc and lead in 1915. D. A. Lyon, O. C. Ralston and J. F. Cullen. Met & Chem Eng 14:30-2 Ja 1 '16
- Hydrometallurgy of zinc, patented by O. Best. Met & Chem Eng 14:104 Ja 15 '16
- Hydrometallurgy of zinc with electrolytic deposition, patented by F. Laist and F. F. Frick. Met & Chem Eng 14:220 F 15 '16
- Lungwitz zinc-smelting process. W. M. Johnson. Met & Chem Eng 14:105-6 Ja 15 '16
- Malm process. Eng & Min J 101:679-80 Ap 15 '16
- Malm process. J. L. Malm; S. A. Ionides. Eng & Min J 101:864-5 My 13 '16
- Metallurgy of zinc in 1915. W. R. Ingalls. Eng & Min J 101:92-4 Ja 8 '16
- Milling low-grade zinc ore. L. L. Wittich. il Eng & Min J 101:441 Mr 4 '16
- New Granby concentrator. L. L. Wittich. il flow sheet Eng & Min J 101:557-8 Mr 25 '16
- Operations in the Slocan district, British Columbia. D. Lay. il flow sheet Eng & Min J 101:463-7 Mr 11 '16
- Recent developments in zinc concentration practice in the Joplin district, Missouri. H. C. Parmelee. Met & Chem Eng 15:319-21 S 15 '16
- Recent metallurgical patents. Met & Chem Eng 14:103-4 Ja 15 '16
- Reclaiming zinc from galvanized iron. Eng & Min J 102:937-8 N 25 '16
- Reduction of roasted zinc blende; abstract. V. Lindt. Eng & Min J 102:66 JI 1 '16
- Roasting of blende. M. de Lummen. Eng & Min J 101:1021-4; 102:741-2 Je 10, O 21 '16
- Roitshheim-Remy continuous zinc distillation process. M. Liebig. il Met & Chem Eng 14:625-9 Je 1 '16
- Year in zinc metallurgy. Met & Chem Eng 14:5-6 Ja 1 '16
- Zinc distillation after prerelution. Eng & Min J 102:91 JI 8 '16
- Zinc-lead mills of California and Nevada. L. A. Palmer. il Met & Chem Eng 15:203-5 Ag 15 '16
- Zinc smelter of today. F. E. Pierce. Eng Soc W Pa 32:20-43 F '16; Abstract. Iron Tr R 58:590 Mr 16 '16; Discussion. Eng Soc W Pa 32:43-60 F '16
- Zinc-tailings treatment. Eng & Min J 102:435 S 2 '16

Zinc mines and mining**Arkansas**

- Exploitation of Arkansas zinc. L. L. Wittich. il Eng & Min J 102:295-7 Ag 12 '16

Australia

- Broken Hill underground mining methods. E. J. Horwood. diags Am Inst Min E Bul 109:65-89 Ja '16

China

- Mining in China. F. Browne. Eng & Min J 102:336-7 Ag 19 '16

French Indo-China

- Zinc mines of Tonkin. L. P. Briggs. Eng & Min J 102:900-2 N 18 '16

Nevada

- Yellow Pine district, Nev. L. A. Palmer. il Eng & Min J 102:123-5 JI 15 '16

New Jersey

- Mining ore from pillars. H. H. Hodgkinson. diags Eng & Min J 102:217-19 JI 29 '16

Utah

- Lakeview mine, Utah. D. W. Jessup. il Eng & Min J 102:573-6 S 30 '16

Virginia

- Southwest Virginia lead-zinc deposits. S. H. Ball and L. S. Thompson. il diag Eng & Min J 102:735-7 O 21 '16

Wisconsin

- Zinc mining in Wisconsin. J. E. Kennedy. Eng & Min J 101:65-6 Ja 8 '16

Zinc ores

- Occurrence of germanium in zinc materials. G. H. Buchanan. J Ind & Eng Chem 8:585-6 JI '16; Excerpts. Eng & Min J 102:335 Ag 19 '16
- Ore genesis and contact metamorphism at the Long Lake zinc mine, Ontario. W. L. Ugolow. il Econ Geol 11:231-45 Ap '16
- Zinc mining district near Edwards, N. Y. D. H. Newland. il map Econ Geol 11:623-44 O '16; Abstract. Eng & Min J 102:938-9 N 25 '16

Zinc oxide

- Metal oxide and sulphide impregnation of fire-brick. N. B. Davis. pls Econ Geol 10:663-75 N '15
- Production of zinc oxide; patent by F. C. W. Timm. Met & Chem Eng 14:666 Je 1 '16

Zinc poisoning

- Zinc poisoning. W. M. Johnson. Eng & Min J 100:1016 D 18 '15

Zinc salts

- Action of alkali on certain zinc salts by means of the hydrogen electrode. J. H. Hildebrand and W. G. Bowers. Am Chem Soc J 38:785-8 Ap '16

Zinc sulphate

- Sulphate of zinc for walls. G. M. Wells. Bldg Age 38:25-6 D '16

Zinc works

- American steel & wire company's zinc works, Donora, Pa. il plan Iron Age 97:82-6 Ja 6 '16
- Donora zinc works. W. R. Ingalls. il plan Eng & Min J 102:648-54 O 7 '16
- Van Buren smelting plant. F. W. Bocking. il plan diag Eng & Min J 102:655-8 O 7 '16
- Wire company completes zinc plant at Donora, Pa. Iron Tr R 58:47 Ja 6 '16
- Works of American zinc and chemical co. at Langeloth. Eng & Min J 102:816 N 4 '16

Zingiberol

- Zingiberol—a new sesquiterpene alcohol occurring in the essential oil of ginger. B. T. Brooks. Am Chem Soc J 38:430-2 F '16

Zircon

- Zircon-bearing pegmatites in Virginia. T. L. Watson. map Am Inst Min E Bul 115:1237-43 JI '16

Zodiacal light

- Zodiacal light; theories as to its cause, and its place in the solar system. W. E. Glanville. Sci Am S 80:375 D 11 '15

Zone system. See City planning—Zone system**Zoological gardens**

- Noted zoological parks; the gardens of the Zoological society of Philadelphia. R. W. Shufeldt. il Sci Am S 81:8-9 Ja 1 '16
- Noted zoological parks; the National zoological park at Washington. R. W. Shufeldt. il Sci Am S 81:216-18 Ap 1 '16
- Zoological garden of Cincinnati. R. W. Shufeldt. il plan Sci Am S 82:56-7 JI 22 '16
- Zoological gardens of Melbourne. R. W. Shufeldt. il plan Sci Am S 81:136-7 F 26 '16

See also New York zoological park

Zoology

See also Animals, Habits and behavior of; Paleontology; Phosphorescence; Taxidermy; Zoological gardens

Zuni Indians

- Ancient botany of the Zuni Indians. M. C. Stevenson. Sci Am S 82:197 S 23 '16

BOSTON PUBLIC LIBRARY



3 9999 05494 238 6

